TRAFFIC STUDY

For

Lago De San Marcos (TM 5388) in the County of San Diego

Submitted To:

Lundstrom & Associates

Submitted By:

Darnell & Associates, Inc.

Revised December 7, 2006
Revised January 26, 2006
Revised August 16, 2005
Revised July 21, 2005
Original January 18, 2005

TRANSPORTATION PLANNING & TRAFFIC ENGINEERING

December 7, 2006

Mr. Troy Burns Lundstrom & Associates 1764 San Diego, Avenue, Suite 200 San Diego, CA 92110

Subject:

Revised Traffic Impact Analysis for the Proposed Lago De San Marcos Condominium (TM 5388) Project Located at the Southeast Corner of Rancho Santa Fe Road and Lake

San Marcos Drive in the San Marcos Area of San Diego County.

Dear Mr. Burns:

In response to the County of San Diego's May 16, 2006 comment letter, Darnell & Associates, Inc. (D&A) has revised our January 26, 2006 traffic impact analysis for the proposed Lago De San Marcos Condominium (TM 5388) Project, located at the southeast corner of Rancho Santa Fe Road and Lake San Marcos Drive in the San Marcos area of San Diego County. This report analyzes the traffic impacts associated with the proposed project on local roadways and intersections, including existing, existing plus project, near term cumulative with and without project; and future conditions with and without project. This iteration of the report assumes that the project will have one access point at the Lake San Marcos Drive/La Tierra Drive intersection.

If you have any questions, please feel free to contact the office.

Sincerely,

DARNELL & ASSOCIATES, INC.

Jessica L. Bavos

Assistant Transportation Planner

Bill E. Darnell P.E. Firm Principal

RCE 22338

BED/vsh/jlb

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AN COURSE OF SECONDARY SEC

D&A Ref. No.: 040912

Date Signed: $\frac{12}{7}/66$

TRANSPORTATION PLANNING & TRAFFIC ENGINEERING

MEMORANDUM

DATE:

December 7, 2006

TO:

Troy Burns, Lundstrom + Associates

FROM:

Jessica Bavos

D&A Ref. No: 040912

RE:

Lago De San Marcos (TM 5388) – Responses to the County of San Diego's May 16,

2006 Comment Letter

Darnell & Associates, Inc. (D&A) has reviewed the County of San Diego's May 16, 2006 comment letter on our January 26, 2006 traffic study for Lago De San Marcos (TM 5388). The following summarizes our responses to each of the County's comments.

- Comment 1: The project applicant/engineer should provide an analysis for traffic volumes that would use the proposed left turn pocket for westbound traffic along San Marcos Drive. The length of the turn pocket needs to be adequate for deceleration and potential queuing.
- Response 1: The traffic study has been revised to expand the discussion on the volume of traffic expected to utilize the westbound left turn lane at Lake San Marcos Drive and La Tierra Drive. The proposed 80-foot turn lane will adequately accommodate the projected demand. (See page 33 of our revised report.)
- Comment 2: Operationally, it may be preferable to allow right turns out of Driveway "B" so that the driveway can be a standard driveway, and motorists desiring to continue east on Lake San Marcos Drive beyond La Tierra Drive can exit that driveway. The project applicant/engineer should consider a median opening posted for no U-turns for eastbound traffic, or a left turn pocket for eastbound traffic would be installed in order to better accommodate the right turns out of Driveway "B".
- **Response 2:** Driveway "B" has been closed see Figure 2 (Page 4) for new Site Plan, thus this comment is no longer applicable.
- Comment 3: The project engineer should state why prohibiting right turns out of Driveway "B" is recommended.
- **Response 3:** Refer to Response 2.
- Comment 4: If the project proposes to prohibit exit from Driveway "B", the project engineer should identify what measures will be implemented to prevent motorists from making right turns out of Driveway "B".
- **Response 4:** Refer to Response 2.

040912-Responsed to County 12-04-06Comments-memo.doc/12-06

- **Comment 5:** The design of the driveway should provide sufficient room to allow motorists to turn around once they realize that they can not exit from Driveway "B".
- **Response 5:** Refer to Response 2.
- Comment 6: The Traffic Study should verify that the 80-foot westbound left turn pocket length (Fig.13) at the Lake San Marcos Drive/La Tierra Drive/Driveway "D" intersection will be sufficient to accommodate the projected vehicle queues.
- Response 6: There are 2 peak hour trips expected to use the westbound left turn pocket at the Lake San Marcos Drive/La Tierra Drive/Driveway "D" intersection. The average vehicle requires 25 feet of storage thus the queue at the westbound left turn lane is not expected to exceed 50 feet (i.e. 2 vehicles X 25 feet/vehicle = 50 feet). Therefore, the 80 foot turn pocket will be sufficient to accommodate the project vehicle queues.
- Comment 7: Figure 13 was reviewed by the Department of Public Works for concept only. A signing and striping plan will need to be provided once project conditions have been approved. The project applicant/engineer should continue to coordinate with DPW staff in order to finalize the project's conditions of approval and improvement plans. If addressing the above questions/comments results in another change to the project's proposed access plan, the Traffic Study will need to be revised.
- **Response 7:** So Noted.

TRAFFIC STUDY

FOR

LAGO DE SAN MARCOS (TM 5388) IN THE COUNTY OF SAN DIEGO

Submitted To:

LUNDSTROM & ASSOCIATES 1764 SAN DIEGO AVENUE, SUITE 200 SAN DIEGO, CA 92110

Submitted By:

Darnell & Associates, Inc. 1446 Front Street, Third Floor San Diego, CA 92101 619-233-9373

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
SECTION I – INTRODUCTION	2
PROJECT DESCRIPTION	2
CONGESTION MANAGEMENT PROGRAM	2
SCENARIOS STUDIED	
LEVEL OF SERVICE	5
ANALYSIS METHODOLOGY	5
REPORT ORGANIZATION	6
SECTION II - EXISTING CONDITIONS	7
EXISTING ROADWAY CHARACTERISTICS	7
ROADWAY SEGMENT DAILY TRAFFIC	
KEY INTERSECTIONS	
INTERSECTION TRAFFIC COUNTS	
EXISTING LEVEL OF SERVICE CONDITIONS	
Roadway Segments	
Intersections	9
SECTION III - PROJECT RELATED CONDITIONS	12
TRIP GENERATION	12
TRIP DISTRIBUTION/TRIP ASSIGNMENT	12
SECTION IV – IMPACTS	15
PUBLIC FACILITIES ELEMENT IN COUNTY	15
LEVELS OF SIGNIFICANCE STANDARDS	15
City of San Marcos	
County of San Diego	16
EXISTING PLUS PROJECT CONDITIONS	
Roadway Segments	
Intersections	
NEAR TERM CUMULATIVE WITHOUT PROJECT CONDITIONS	
NEAR TERM CUMULATIVE WITH PROJECT CONDITIONS	
Roadway Segments	
Intersections	
SECTION V - PROJECT ACCESS/CIRCULATION	
SECTION VI - PROJECT MITIGATION	35
MITIGATION	
COUNTY OF SAN DIEGO TRANSPORTATION IMPACT FEE (TIF)	35
SECTION VII - SUMMARY OF FINDINGS AND CONCLUSIONS	36

LIST OF FIGURES

Figure 1 - Vicinity Map	3
Figure 2 - Site Plan	4
Figure 3 - Existing Conditions	8
Figure 4 - Existing Traffic Volumes	10
Figure 5 - Project Trip Distribution	13
Figure 6 - Project Related Traffic Volumes	14
Figure 7 - Existing Plus Project Traffic Volumes	19
Figure 8 - Near Term Cumulative w/o Project Traffic Volumes	23
Figure 9 - Near Term Cumulative with Project Traffic Volumes	24
Figure 10 - 2030 Conditions	
Figure 11 - 2030 Without Project Traffic Volumes	
Figure 12 - 2030 With Project Traffic Volumes	
Figure 13 – Channelization Concept Lake San Marcos Dr./La Tierra Dr	34
LIST OF TABLES	
Table 1 - Level of Service Ranges	5
Table 2 - Existing Roadway Segment Level of Service Summary	11
Table 3 - Existing Intersection Level of Service Summary	
Table 4 - Trip Generation Rates and Calculations Summary	
Table 5 - SANTEC/ITE Thresholds of Significance	15
Table 6 – County of San Diego's Measures of Significant Project Impacts	
Table 7 - Existing Plus Project Roadway Segment Level of Service Summary	20
Table 8 - Existing Plus Project Intersection Level of Service Summary	
Table 9 - Near Term Cumulative Roadway Segment Level of Service Summary	
Table 10 – AM Peak Hour Near Term Cumulative Intersection Level of Service Summary	
Table 11 - PM Peak Hour Near Term Cumulative Intersection Level of Service Summary	
Table 12 - 2030 Roadway Segment Level of Service Summary	
Table 13 – Transportation Impact Fee (TIF) Summary	35

APPENDICES

APPENDIX A

- ➤ 24-Hour Segment Counts
- ➤ AM/PM Peak Hour Turn Counts
- ➤ Summary of County of San Diego Public Road Standards
 - ➤ City of San Marcos Level of Service Standards
 - City of San Marcos Urban Street Design Criteria
- Excerpts from the County of San Diego's Public Facilities Element
 - > Excerpts from the SANTEC/ITE Guidelines
- Excerpts from the County of San Diego's Guidelines for Determining Significance
 - > County TIF North County Metro Fee Schedule

APPENDIX B

> Excerpts from the University Commons Report

APPENDIX C

> Existing Conditions Analysis Worksheets

APPENDIX D

➤ Existing + Project Conditions Analysis Worksheets

APPENDIX E

➤ Near Term Cumulative w/o Project Conditions Analysis Worksheets

APPENDIX F

➤ Near Term Cumulative With Project Conditions Analysis Worksheets

APPENDIX G

- ➤ All Way Stop-Control Warrants for Lake San Marcos/San Marino
 - > TAC Report of February 23, 2001

APPENDIX H

➤ Response to County Comments

EXECUTIVE SUMMARY

The applicant proposes to construct 42 multi-family condominium units at the southeast corner of Rancho Santa Fe Road and Lake San Marcos Drive in the San Marcos area of San Diego County. As this report will show, the proposed project is estimated to generate 252 average daily trips, 20 AM peak hour trips, and 23 PM peak hour trips.

This report will show that under existing conditions, the segment of San Marcos Boulevard between Rancho Santa Fe Road and Bent Avenue operates at LOS E. The proposed project, however, will not significantly impact this segment of San Marcos Boulevard.

Under existing conditions, the Rancho Santa Fe Road/San Marcos Boulevard and Rancho Santa Fe/Melrose Drive intersections operate at LOS E or F during at least one of the peak hours. The addition of the proposed project, however, will not significantly impact these intersections.

Rancho Santa Fe Road between San Marcos Boulevard and Melrose Drive will operate at LOS F and the segment of San Marcos Boulevard between Rancho Santa Fe Road and Bent Avenue will operate at LOS E under 2030 conditions with or without the addition of the proposed project. The proposed project, however, will not significantly impact these segments of Rancho Santa Fe Road and San Marcos Boulevard.

It should be noted that the project will add traffic to County Roadway segments that were not analyzed in this report, but are known to operate below LOS D. Therefore, the project will be part of a cumulative impact to the County roadway segments.

SECTION I – INTRODUCTION

PROJECT DESCRIPTION

The project proposes to develop 42 multi-family condominium units at the southeast corner of Rancho Santa Fe Road and Lake San Marcos Drive in the San Marcos area of San Diego County. Figure 1 shows the vicinity map of the project and Figure 2 shows the proposed site plan.

CONGESTION MANAGEMENT PROGRAM

Based on the approval of Proposition 111 in 1990, regulations require the preparation, implementation, and annual updating of a Congestion Management Program (CMP) in each of California's urbanized counties. The original CMP for the San Diego region was adopted in 1991 and has been updated periodically as an element of the Regional Transportation Plan (RTP). One required element of the CMP is a process to evaluate the transportation and traffic impacts of large projects on the regional transportation system. That process is undertaken by local agencies, project applicants, and traffic consultants through a transportation impact report usually conducted as part of the CEQA project review process. Authority for local land use decisions including project approvals and any required mitigation remains the responsibility of local jurisdictions.

The criteria for which a project is subject to the regulations as set forth in the CMP are determined by the trip generation potential for the project. Currently, the threshold is 2,400 average daily trips (ADT) or 200 peak hour trips. The proposed project will generate 252 average daily trips, 20 AM peak hour trips, and 23 PM peak hour trips (see Section III), and is therefore, not subject to CMP guidelines for traffic impact studies.

SCENARIOS STUDIED

The traffic scenarios analyzed in this report are identified as follows:

Existing Conditions refers to that condition which exists on the ground today, including existing traffic and existing lane configurations at intersections and roadway segments.

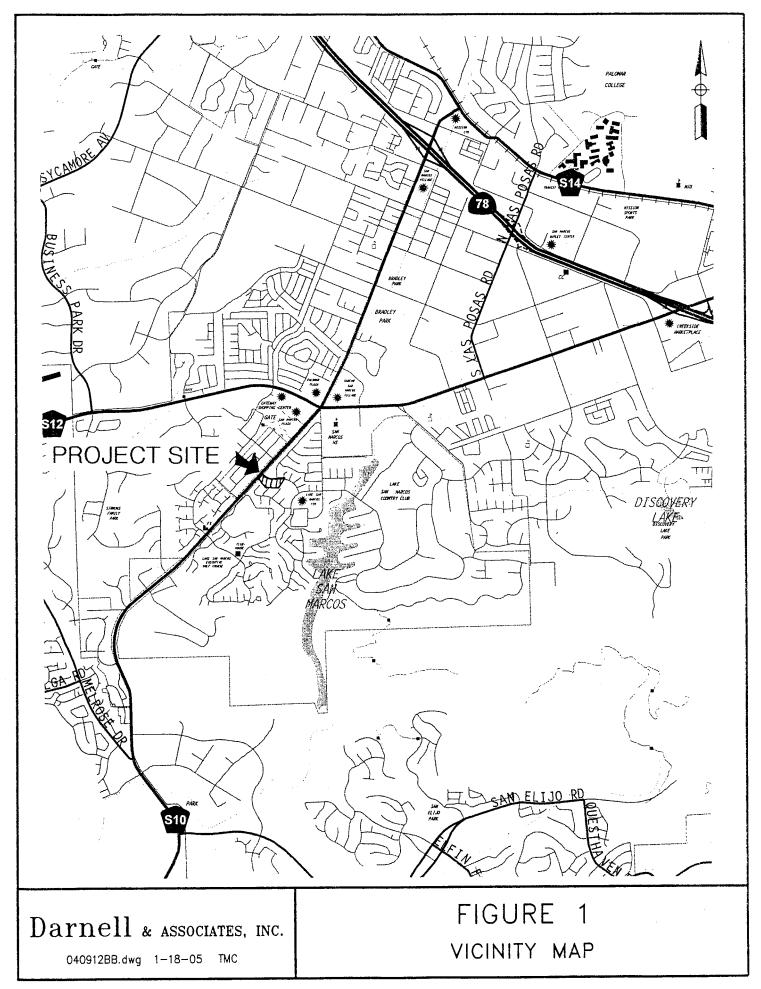
Existing Plus Project Conditions refers to that condition which includes the project traffic added onto existing volumes.

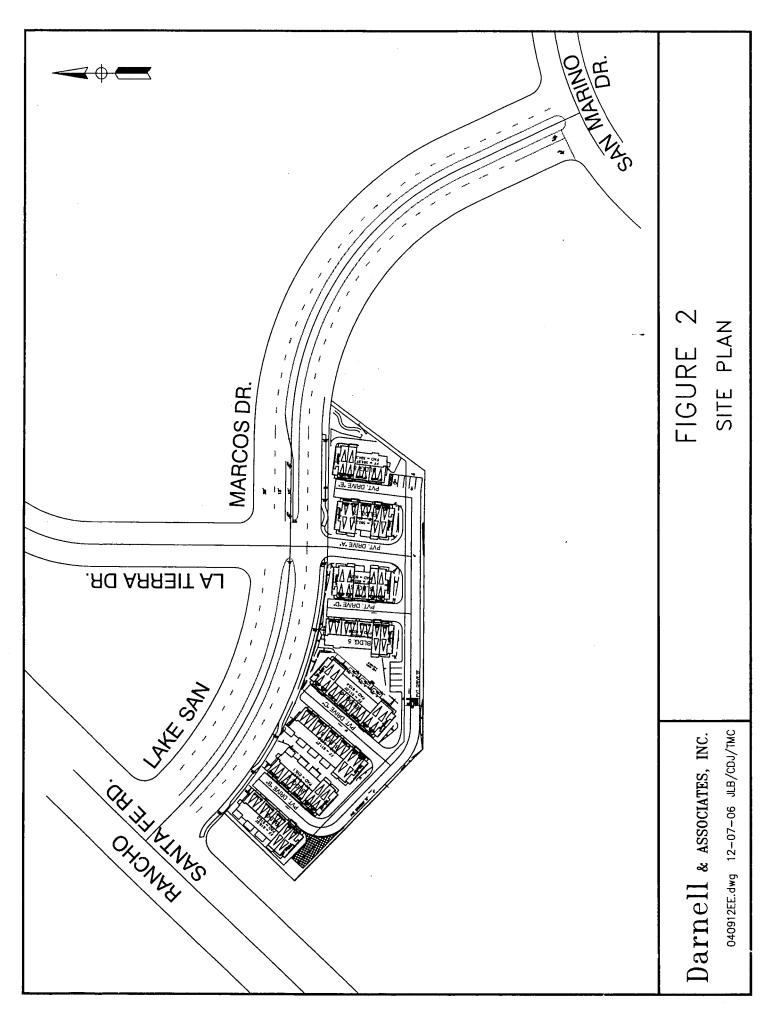
Near Term Cumulative Without Project Conditions refers to that condition which includes approved/pending projects in the study area plus the existing traffic volumes with an added ambient growth. This scenario shows the impact without the project.

Near Term Cumulative With Project Conditions refers to that condition which includes approved/pending projects in the sphere of influence of the study area plus the project traffic plus the existing traffic volumes with an ambient growth. This scenario shows the impact with the project.

2030 Base Conditions refers to that condition which would exist in the Year 2030 without the addition of the proposed project. For the Year 2030 it has been assumed that all the roadway segments in the vicinity of the project would be built out to their ultimate Circulation Element classification. This scenario shows the impact without the project.

2030 Plus Project Conditions refers to that condition which will exist in the Year 2030 with the addition of the proposed project. This scenario shows the impact with the project.





LEVEL OF SERVICE

Level of Service (LOS) is a professional industry standard by which the operating conditions of a given roadway segment or intersection are measured. Level of Service is defined on a scale of A to F; where LOS A represents the best operating conditions and LOS F represents the worst operating conditions. LOS A facilities are characterized as having free flowing traffic conditions with no restrictions on maneuvering or operating speeds; traffic volumes are low and travel speeds are high. LOS F facilities are characterized as having forced flow with many stoppages and low operating speeds. Table 1 shows the average daily traffic volumes (ADT), average travel speeds, and delay ranges that are equivalent to each level of service.

	Table 1 - Level of Service Ranges												
	Inters												
LOS			Roadway Segments										
	Signalized- Delay (Seconds/Vehicle) ¹	Unsignalized Delay (Seconds/Vehicle) ¹	Average Daily Traffic (ADT) for Major Arterial ²										
A	Less than or Equal to 10.0	Less than or Equal to 10.0	Less Than 24,000										
В	10.1 to 20.0	10.1 to 15.0	24,000 to 28,000										
С	20.1 to 35.0	15.1 to 25.0	28,000 to 32,000										
D	35.1 to 55.0	25.1 to 35.0	32,000 to 36,000										
Е	55.1 to 80.0	35.1 to 50.0	36,000 to 40,000										
F	Greater Than 80.0	Greater Than 50.1	Greater Than 40,000										

¹ The delay ranges shown are based on the 2000 Highway Capacity Manual (HCM)

LOS = Level of Service

According to page XII-4-15 of the San Diego County General Plan *Public Facility Element* "A LOS 'C', which allows for stable traffic flow with room to maneuver, is a generally accepted level to strive for in new development. ...However, there are some cases where development cannot achieve a LOS "C" on off-site roadways. For instance, there are areas where the existing development pattern precludes the addition of lanes or other mitigation or when the community is opposed to certain improvements to maintain a LOS 'C'. ...In these cases a Level of Service 'D' is acceptable on off-site roadways." A copy of excerpts from the County's *Public Facility Element* can be found in Appendix A.

The City of San Marcos also considers LOS D to be an acceptable level of service on roadway segments and intersections.

ANALYSIS METHODOLOGY

The roadway segment daily LOS was determined by comparing the traffic volumes under each traffic scenario to the capacity of the roadway according to its roadway cross-section and classification. For the purpose of this report, the daily traffic volumes of the roadway segments in the vicinity of the project were compared to the County of San Diego Level of Service classification thresholds or the City of San Marcos Standard Street Classifications, depending on whether the segment was located within the County of San Diego or City of San Marcos. The daily (24 hour) traffic count sheets and a copy of the "Summary of County of San Diego Public Road Standards" and the City of San Marcos Standard Street Classifications are included in Appendix A.

The Synchro Software, version 6.0, was utilized to analyze the morning and afternoon peak hour conditions of the intersections in the project vicinity. The signalized intersection methodology defines LOS based on delay using variables such as lane configuration, traffic volumes, and signal timings. The

² The volume ranges are based on the City of San Marcos Classification of a Major Arterial, the average daily volume ranges for the other roadway classifications has been provided in Appendix A.

unsignalized intersection methodology defines LOS based on the longest delay experienced by any single movement.

Since the Synchro program calculates the average delay per vehicle, there may be instances where the Synchro analysis will show a reduction in delay with the addition of more traffic. This phenomenon occurs when the additional traffic is added to a movement that experiences a shorter amount of delay, thereby decreasing the intersections average delay per vehicle (i.e. a larger amount of vehicles will have to wait a shorter time while only a few vehicles have to wait an extended period of time). It should be noted, however, that even if the addition of traffic results in a lower average intersection delay per vehicle, the total delay at the intersection will gradually increase as more traffic is added to the intersection. The measure of effectiveness utilized within this report is the average intersection delay, not the total intersection delay. It should be noted that the Synchro software is based on the 2000 Highway Capacity Manual (HCM).

It should be noted that the Lake San Marcos Drive/San Marino Drive intersection currently operates as a one-way stop-controlled intersection. Due to community concerns the Lake San Marcos Drive/San Marino Drive intersection was also analyzed as an all-way stop-controlled intersection. Section V provides a detailed discussion on the all-way stop-control warrant analysis.

REPORT ORGANIZATION

Following this section, Section II evaluates the existing roadway characteristics and traffic conditions surrounding the project area. Section III examines the project trip generation and distribution assumptions. Section IV analyzes the traffic for existing plus project, near term cumulative conditions with and without the proposed project, and 2030 conditions with and without the proposed project. Section V addresses project access and on-site circulation. Section VI provides recommended mitigation measures and Section VII summarizes the report's findings and conclusions.

SECTION II - EXISTING CONDITIONS

This section of the traffic study is intended to assess the existing conditions of the roadways and intersections within the vicinity of the project to determine travel flow and/or delay difficulties, if any, that exist prior to adding the traffic generated by the proposed project. The existing conditions analysis establishes a base condition which is used to assess the other scenarios discussed in this report.

Darnell & Associates, Inc. (D&A) conducted a field review of the area surrounding the project in September 2004. The existing roadway geometrics are illustrated in Figure 3.

EXISTING ROADWAY CHARACTERISTICS

The key segments analyzed in the study area are identified below:

Rancho Santa Fe Road: Rancho Santa Fe Road is a north-south four-lane divided circulation element roadway that is located within the City of San Marcos from north of SR-78 to Melrose Drive and located within the City of Carlsbad south of Melrose Drive. Rancho Santa Fe Road has a raised median between SR-78 and Lake San Marcos Drive and it has a painted median between Lake San Marcos Drive and Island Drive. The current cross-section of Rancho Santa Fe Road is equivalent that of a 4-Lane Major Arterial with a capacity of 40,000 ADT at LOS E.

Under the City of San Marcos Urban Street Design, Rancho Santa Fe Road from SR-78 to San Marcos Boulevard is classified as a Prime Arterial with a capacity of 60,000 ADT at LOS E. From San Marcos Boulevard to Melrose Drive, Rancho Santa Fe Road is classified as a 4-Lane Major Arterial with a capacity of 40,000 ADT at LOS E.

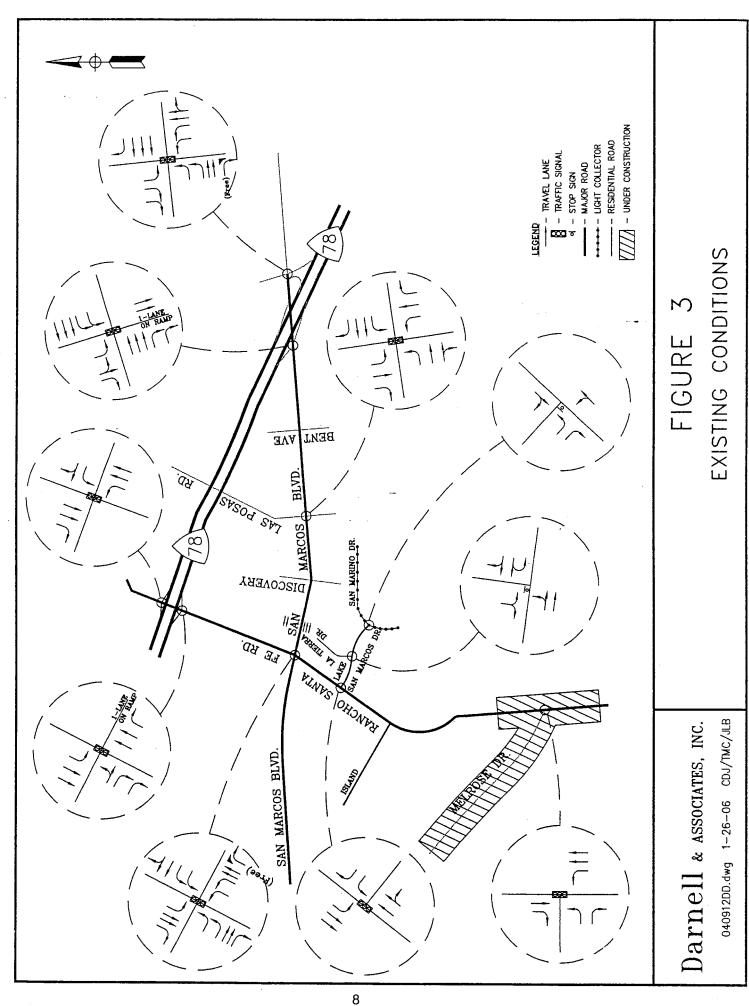
<u>San Marcos Boulevard:</u> San Marcos Boulevard is an east-west circulation element roadway that is located within the City of San Marcos. West of Rancho Santa Fe Road and between Discovery Street and Bent Avenue, San Marcos Boulevard is a four-lane divided roadway with a raised median. The current cross-section of these sections of San Marcos Boulevard is equivalent that of a 4-Lane Major Arterial with a capacity of 40,000 ADT at LOS E.

Between Rancho Santa Fe Road and Discovery Street, San Marcos Boulevard has three eastbound lanes and two westbound lanes with a raised median. East of Bent Avenue, San Marcos Boulevard is a six-lane divided roadway with a raised median.

Under the City of San Marcos Urban Street Design, San Marcos Boulevard is classified as a as a Prime Arterial with a capacity of 60,000ADT at LOS E.

<u>Lake San Marcos Drive</u>: Lake San Marcos Drive is an east-west non-circulation element roadway that is located within the jurisdiction of the County of San Diego. Between Rancho Santa Fe Road, San Marino Drive, Lake San Marcos Drive is a four-lane divided roadway with a raised median. The current cross-section of Lake San Marcos Drive is equivalent that of a four-lane Major Arterial with a capacity of 37,000 ADT at LOS E.

<u>La Tierra Drive</u>: La Tierra Drive is a north-south non-circulation element roadway that is located within the jurisdiction of the County of San Diego. The current cross-section of La Tierra Drive is equivalent that of a Residential Street with a recommended capacity of 1,500 ADT at LOS C.



<u>San Marino Drive</u>: San Marino Drive is a non-circulation element roadway that is located within the jurisdiction of the County of San Diego. The current cross-section of San Marino Drive is equivalent that of a Light Collector with a capacity of 16,200 ADT at LOS E.

ROADWAY SEGMENT DAILY TRAFFIC

Twenty-four (24) hour counts for the project area were conducted at each of the key roadway segments in September 2004. Figure 4 presents the existing conditions traffic volumes used in this analysis. Count summaries are included in Appendix A.

KEY INTERSECTIONS

Figure 3 provides intersection configurations and traffic control for the key intersections. The key intersections analyzed in the study area are identified below:

- Rancho Santa Fe Road/SR-78 Westbound Ramps (signalized);
- Rancho Santa Fe Road/SR-78 Eastbound Ramps (signalized);
- Rancho Santa Fe Road/San Marcos Boulevard (signalized);
- Rancho Santa Fe Road/Lake San Marcos Drive (signalized);
- Ranchos Santa Fe Road/Melrose Drive (signalized);
- San Marcos Boulevard/Las Posas Road (signalized);
- San Marcos Boulevard/SR-78 Eastbound Ramps (signalized);
- San Marcos Boulevard/SR-78 Westbound Ramps (signalized);
- Lake San Marcos Drive/La Tierra Drive (Stop Controlled on Southbound Approach); and
- Lake San Marcos Drive/San Marino Drive (Stop-Controlled on Eastbound Approach).

INTERSECTION TRAFFIC COUNTS

AM/PM peak hour turn counts were collected at each of the key intersections on Tuesday September 21, 2004. Figure 4 presents the existing conditions traffic volumes used in this analysis.

EXISTING LEVEL OF SERVICE CONDITIONS

Roadway Segments

Table 2 summarizes the existing levels of service for the key roadway segments. As can be seen in Table 2, with the exception of San Marcos Boulevard between Rancho Santa Fe Road and Bent Avenue, all key segments analyzed currently operate at an acceptable LOS D or better. San Marcos Boulevard between Rancho Santa Fe Road and Bent Avenue currently operates at LOS E.

Intersections

The results of the Synchro analysis for the existing conditions are summarized in Table 3. As can be seen from Table 3, with the exception of the Rancho Santa Fe Road/San Marcos Boulevard and Rancho Santa Fe/Melrose Drive intersections, all key intersections analyzed currently operate at LOS D or better during both the AM and PM peak hour. The Rancho Santa Fe Road/San Marcos Boulevard intersection currently operates at LOS F during the PM peak hour and the Rancho Santa Fe/Melrose Drive intersection currently operates at LOS E during the AM peak hour. A copy of the Synchro worksheets for existing conditions can be found in Appendix C.

It should be noted that the Lake San Marcos Drive/San Marino Drive intersection operates acceptably with the existing one-way stop-control and with the community preferred all-way stop-control condition.

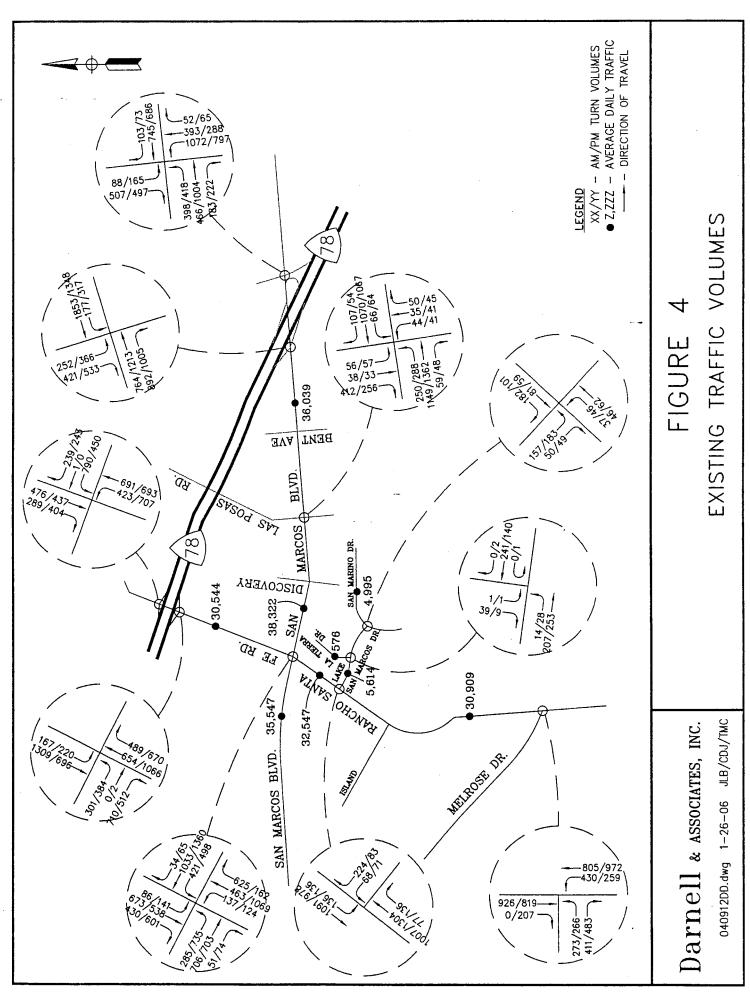


Table 2 - Existing Roadway Segment Level of Service Summary												
Segment	Class	Capacity at LOS E	ADT	V/C	LOS							
Rancho Santa Fe Road ^(a)												
SR-78 to San Marcos Blvd.	4MA	40,000	30,544	0.764	С							
San Marcos Blvd. To Lake San Marcos Dr	4MA	40,000	32,547	0.814	D							
Lake San Marcos Dr. to Melrose Dr.	4MA	40,000	30,909	0.773	С							
San Marcos Boulevard ^(a)												
w/o Rancho Santa Fe Rd.	4MA	40,000	35,867	0.897	D							
Rancho Santa Fe Rd. to Las Posas Rd.	4MA	40,000	38,322	0.958	\mathbf{E}							
Las Posas Rd. to Bent Avenue	4MA	40,000	36,039	0.901	\mathbf{E}							
Lake San Marcos Drive ^(b)												
Rancho Santa Fe Rd. to San Marino Dr.	4MA	37,000	5,614	0.152	Α							
San Marino Drive ^(b)												
ne/o Lake San Marcos Dr.	LC	16,200	4,995	0.308	C							
La Tierra Drive ^(b)												
n/o Lake San Marcos Dr.	RS ^(c)	1,500 at LOS C	576	N/A	< C							

⁽a) Segment is Located in the City of San Marcos

w/o = West of; n/o= North of; ne/o= North East of

Table 3 - Existing Inters	Table 3 - Existing Intersection Level of Service Summary												
Intersections	Critical	AM Peak l	Hour	PM Peak Hour									
intersections	Movement	Delay	LOS	Delay	LOS								
Rancho Santa Fe @ SR-78 WB Ramps (SIG) (a)	Intersection	44.3	D	39.4	D								
Rancho Santa Fe @ SR-78 EB Ramps (SIG) (a)	Intersection	17.4	В	21.1	С								
Rancho Santa Fe @ San Marcos Blvd. (SIG) (a)	Intersection	35.2	D	91.5	F								
Rancho Santa Fe @ Lake San Marcos (SIG) (a)	Intersection	10.2	В	10.1	В								
Rancho Santa Fe @ Melrose (SIG) (a)	Intersection	60.2	Е	34.0	С								
San Marcos Blvd. @ Las Posas (SIG) (a)	Intersection	18.2	В	24.5	С								
San Marcos Blvd. @ SR-78 EB Ramps (SIG) (a)	Intersection	19.4	В	32.7	С								
San Marcos Blvd. @ SR-78 WB Ramps (SIG) (a)	Intersection	31.3	С	37.1	D								
Lake San Marcos @ La Tierra (OWSC) (b)	SB Approach	9.3	A	9.0	A								
Lake San Marcos @ San Marino (OWSC) (b)	EB Approach	11.7	В	12.0	В								
	EB Approach	9.2	A	9.6	A								
Lake San Marcos @ San Marino (AWSC) (b)(c)	NB Approach	8.7	A	8.9	Α								
	SB Approach	9.4	A	8.7	A								

LOS = Level of Service of the critical movement; Delay is measured in seconds per vehicle

⁽b) Segment is Located in the County of San Diego

⁽c) Levels of Service are not typically applied to residential streets as their primary purpose is to serve abutting lots, not carry through traffic. The capacity shown here is the recommended capacity for LOS C. (< C = Less than LOS C)

LOS = Level of Service of the critical movement; V/C= Volume to Capacity Ratio; N/A = Not Applicable

⁴MA= 4-Lane Major Arterial; LC= Light Collector; RS = Residential Street

OWSC = One-Way Stop-Controlled; AWSC = All-Way Stop-Controlled; SIG = Signalized; EB = Eastbound; WB = Westbound;

SB = Southbound; NB = Northbound

⁽a) Intersection is Located in the City of San Marcos

⁽b) Intersection is Located in the County of San Diego

⁽c) Due to community concerns, this intersection was analyzed with AWSC as well as with the existing OWSC.

SECTION III - PROJECT RELATED CONDITIONS

TRIP GENERATION

The trip generation potential for the project is based on trip generation rates, both daily and peak hour rates, which were taken from the (*Not So*) *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* published by the San Diego Association of Governments (SANDAG) in April 2002.

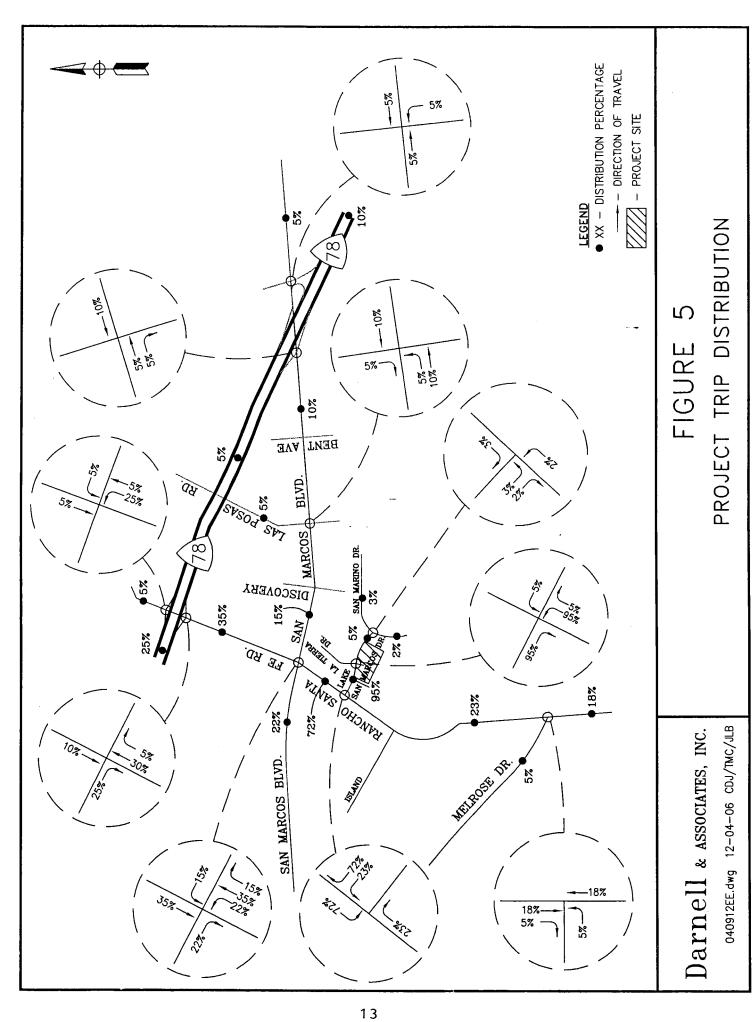
Table 4 summarizes the trip generation rates and volumes for the proposed project. As shown in Table 4 the proposed Lago De San Marcos project will generate a total of 252 average daily trips, 20 morning peak hour trips, and 23 afternoon peak hour trips.

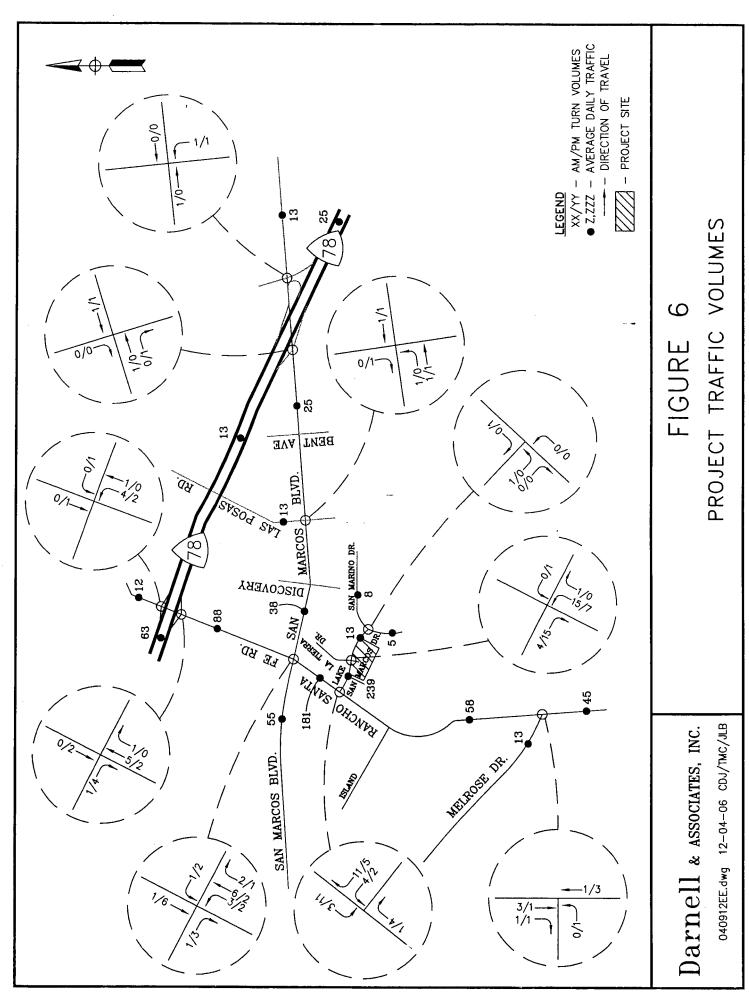
Tabl	Table 4 - Trip Generation Rates and Calculations Summary												
Trip Generation Rates													
AM Peak Hour Trip Rate PM Peak Hour Trip Rate													
Land Use	Daily Trip	Rate	Total - % of Daily	% In	% Out	Total - % of Daily	% In	% Out					
Multi-Family Condominiums 6 Trips/DU 8% 20% 80% 9% 70% 30%													
		r	Trip Generation	on									
Landlia	Total #	Daily	AM Peal	K Hour T	`rips	PM Peal	k Hour T	rips ·					
Land Use	of Units	Trips	Total	In	Out	Total	In	Out					
Multi-Family Condominiums	42	252	20	4	16	23	16	7					
DU = Dwelling Unit; Trip Generation Rates per SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002													

TRIP DISTRIBUTION/TRIP ASSIGNMENT

Trip distribution for this site was determined based on the SANDAG 2005 Select Zone forecast. The project distribution percentages are presented in Figure 5. Project traffic was assigned to the adjacent roadway network using the distribution shown in Figure 5. The project related traffic volumes are illustrated in Figure 6.

The impacts associated with the addition of project traffic are discussed in the following section, Section IV.





SECTION IV - IMPACTS

PUBLIC FACILITIES ELEMENT IN COUNTY

According to page XII-4-18 of the *Public Facility Element* for San Diego County, a discretionary project which has a significant impact on roadways will be required, as a condition of approval, to make "improvements or other measures necessary to mitigate traffic impacts to avoid reduction in the existing Level of Service below 'D' on off-site and on-site abutting Circulation Element roads. New development that would significantly impact congestion on roads at LOS 'E' or 'F', either currently or as a result of the project, will be denied unless improvements are scheduled to increase the LOS to 'D' or better or appropriate mitigation is provided. Appropriate mitigation would include a fair share contribution in the form of road improvements or a fair share contribution to an established program or project. If impacts cannot be mitigated, the project will be denied unless a specific statement of overriding findings is made pursuant to Section 15091(b) and 15093 of the State CEQA Guidelines."

The *Public Facility Element* for the County of San Diego also requires that all on-site Circulation Element roads operate at Level of Service C or better. If the Level of Service at an on-site Circulation Element road is reduced below LOS C, the proposed project must provide appropriate mitigation measures. A copy of excerpts from the County's *Public Facility Element* can be found in Appendix A.

LEVELS OF SIGNIFICANCE STANDARDS

The proposed project is located within the County of San Diego, however, most of the key roadway segments and intersections analyzed in this report fall under the jurisdiction of the City of San Marcos. Therefore, significance was based on the City of San Marcos' thresholds or the County of San Diego's thresholds, depending on which jurisdiction is responsible for the roadway segment and/or intersection. The following summarizes the thresholds of significance utilized by the City of San Marcos and County of San Diego. The guidelines for the roadway segments, signalized intersections, and stop-controlled intersections discussed below were used to determine both direct (project only) and cumulative (approved projects plus project) impacts.

City of San Marcos

For the purpose of this report the San Diego Traffic Engineers' Council (SANTEC) and the Institute of Transportation Engineers (ITE) Guidelines for Traffic Impact Studies (TIS) in the San Diego Region, March 2, 2000 Final Draft was utilized to determine the significance of traffic impacts in regards to requiring mitigation for the roadway segments and intersections located with the City of San Marcos. Table 5 summarizes the Measures of Significant Project Traffic Impacts outlined in the SANTEC/ITE Guidelines for TIS in the San Diego Region. As can be seen from Table 5, an increase in v/c ratio of 0.02 or less or an increase in delay of 2 seconds or less on roads/intersections operating at LOS D, E or F is considered to be insignificant.

	Table 5 - SANTEC/ITE Thresholds of Significance												
	Allowable Change Due to Project Impacts												
Level of Service With Project		Freeways	Road	lway Segments	Intersections	Ramp Metering							
	v/c	Speed (mph)	v/c	Speed (mph)	Delay (Sec)	Delay (min)							
D, E, & F (or ramp meter delays above 15 min.) 0.01 1 0.02 1 2 2													
Source: SANTEC/ITE Guidelines TIS in the San Diego Region, March 2, 2000 Final Draft													

County of San Diego

Although the Public Facility Element (PFE) sets standards as to which level of service roadways and intersections must operate within the County (i.e. requires operation of LOS D or better), it does not establish a threshold to evaluate whether a project is significant if it adds traffic to a roadway facility that is currently operating at an unacceptable LOS E or F. Thus, the County's *Guidelines for Determining Significance* (adopted September 26, 2006) was developed to evaluate the significance of traffic impacts on roadways and intersections which are currently operate at LOS E or F. A summary of the County's Guidelines is provided in Table 6. Copies of excerpts from the County's Guidelines are provided in Appendix A.

	Table 6 – County of San Diego's Measures of Significant Project Impacts													
Allowable Increase on Congested Roads and Intersections														
LOS	S Intersections Road Segments													
	Signalized	Unsignalized	2-Lane Road	4-Lane Road	6-Lane Road									
LOS E	Delay of 2 seconds	20 peak hour trips on a critical movement	200 ADT	400 ADT	600 ADT									
LOS F	Delay of 1 second, or 5 peak hour trips on a critical movement	5 peak hour trips on a critical movement	100 ADT	200 ADT	300 ADT									

Notes:

- A critical movement is one that is experiencing excessive queues.
- By adding proposed project trips to all other trips from a list of projects, these same tables are used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project that contributes any trips must mitigate a share of the cumulative impacts.
- The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.

ADT = Average Daily Traffic; LOS = Level of Service, sec = Seconds of Delay per Vehicle

It should be noted that the significance thresholds summarized in Table 6 are currently only utilized by the County of San Diego to determine if a project has a significant direct and/or future impact. A project is considered to have a significant near term cumulative impact if it adds any traffic to a roadway segment and/or intersection that operates at LOS E or F under near term cumulative conditions.

Consistent with the *Public Facility Element* the criteria described below was only applied to segments and intersections that operate at LOS E or LOS F that are located within the County of San Diego. Therefore, the thresholds outlined in Table 6 were only applied to the segments and intersections along Lake San Marcos Drive, La Tierra Drive, and San Marino Drive.

Roadway Segments

As shown in Table 6, per the County's Guidelines, a project would be considered to have a significant direct traffic volume and/or level of service traffic impact on a road segment if:

- "The additional or redistributed ADT generated by the proposed project will cause an adjacent or nearby County Circulation Element Road to operate below LOS D and will significantly increase congestion as identified in Table [6], and/or
- The additional or redistributed ADT generated by the proposed project will cause a residential street to exceed its design capacity, and/or

• The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a Circulation Element Road, State Highway, or intersection currently operating at LOS E or LOS F as identified in Table [6]."

As discussed on pages 12 and 13 of the County's *Guidelines for Determining Significance*, an increase of the daily thresholds established for roadways segments operating at LOS E would result in only one additional car every 2.4 minutes per lane while the thresholds established for roadway segments operating at LOS F would result in only one additional car every 4.8 minutes. Therefore, the thresholds identified in Table 6, in most cases, would result in changes to traffic flow that would not be noticeable to the average driver and would thus not constitute a significant impact on the roadway.

The County guidelines also states that "For large projects, controversial projects and/or project which are preparing Environmental Impact Reports, more detailed evaluations to verify the applicability of the significance thresholds for the individual project conditions may be necessary. Additional evaluations may include analysis of vehicle headways, speeds, average gaps, queues, delay, and/or other factors."

Signalized Intersections

At signalized intersections, the project would be considered to have a significant direct volume and/or level of service traffic impact if:

- "The additional or redistributed ADT generated by the proposed project will cause a signalized intersection to operate below LOS D and will significantly increase congestion as identified in Table [6], and/or
- The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a signalized intersection currently operating at LOS E or LOS F as identified in Table [6]."

As discussed on page 15 of the County's *Guidelines for Determining Significance*, an increase in delay of two seconds, the threshold established for signalized intersections operating at LOS E, "...is a small fraction of the typical cycle length for a signalized intersection that ranges between 60 and 120 seconds. The likelihood of increased queues forming due to the additional two seconds of delay is low." Thus, the increase in delay of two (2) seconds, on average, would result in changes to traffic flow that would not be noticeable to the average driver and would thus not constitute a significant impact. Since small changes and disruptions to the traffic flow at a signalized intersection can have a greater effect on the overall intersection operation when the intersection is operating at LOS F, versus LOS E, a more stringent guideline of one (1) second of delay was established for intersections operating at LOS F.

The five (5) peak hour trip threshold, established for the critical movement of a signalized intersection operating at LOS F, when spread out throughout the peak hour, results in an increase of one vehicle every 12 minutes or 720 seconds. This increase would not be noticeable to the average driver because one additional vehicle during a 12 minute interval on average, would clear the traffic signal cycles well within the 12 minute period. Further, even if all five (5) additional peak hour vehicles arrived at the same time, these trips would also, on average, clear the traffic cycle and the existing queue lengths would be reestablished. Thus, the increase five (5) peak hour trips to a critical movement at a signalized intersection, on average, would result in changes to traffic flow that would not be noticeable to the average driver and would thus not constitute a significant impact. (See page 15 of the County's *Guidelines for Determining Significance* provided in Appendix A.)

Unsignalized Intersections

At unsignalized intersections, the project would be considered to have a significant direct volume and/or level of service traffic impact if:

- "The proposed project will generate 20 or more peak hour trips to a critical movement of an unsignalized intersection, and cause the unsignalized intersection to operate below LOS D, or
- The proposed project will generate 20 or more peak hour trips to a critical movement of an unsignalized intersection and the unsignalized intersection currently operates at LOS E, or
- The proposed project will generate 5 or more peak hour trips to a critical movement of an unsignalized intersection, and cause the unsignalized intersection to operate below LOS E, or
- The proposed project will generate 5 or more peak hour trips to a critical movement of an unsignalized intersection and the unsignalized intersection currently operates at LOS F, or
- Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance and/or other factors, it is found that the generation rate less than those specified above would significantly impact the operations of the intersection."

As discussed on page 17 of the County's *Guidelines for Determining Significance*, the addition of 20 peak hour trips to a critical movement, the threshold established for an unsignalized intersection operating at LOS E, would result in an increase of one (1) vehicle every 3.0 minutes or 180 seconds. "Assuming the wait time for a vehicle in the critical movement queue is less than 3.0 minutes, which is typical for LOS E condition, this would not be noticeable to the average driver and would not be considered a significant impact." The five (5) peak hour trip threshold established for an unsignalized intersection operating at LOS F, would result in an increase of one (1) vehicle every 12.0 minutes or 720 seconds. "This typically exceeds the wait time in the queue and would not be noticeable to the average driver." (See page 17 of the County's *Guidelines for Determining Significance* provided in Appendix A.)

EXISTING PLUS PROJECT CONDITIONS

The daily and peak hour turn volumes for existing plus project conditions are illustrated in Figure 7.

Roadway Segments

The roadway segments were analyzed with the traffic generated from the proposed project added to existing traffic volumes. The roadway segments existing plus project daily levels of service are summarized in Table 7.

The San Marcos Boulevard and Rancho Santa Fe Road segments are located in the City of San Marcos jurisdiction thus; SANTEC/ITE guidelines were used to determine significance. As shown in Table 7, the segments of San Marcos Boulevard between Rancho Santa Fe Road and Bent Avenue continue to operate at LOS E under existing plus project conditions. The addition of the proposed project increases the existing volume-to-capacity ratio by 0.001 and is therefore considered to be insignificant. All other roadway segments continue to operate at LOS D or better.

It should be noted that although the County segments of Rancho Santa Fe Road and San Marcos Boulevard were not analyzed in this report, the project will add one (1) ADT to the County segments located outside of the study area. Since this is less than the County thresholds shown in Table 6, the project will not have any direct impacts on the County roadway segments.

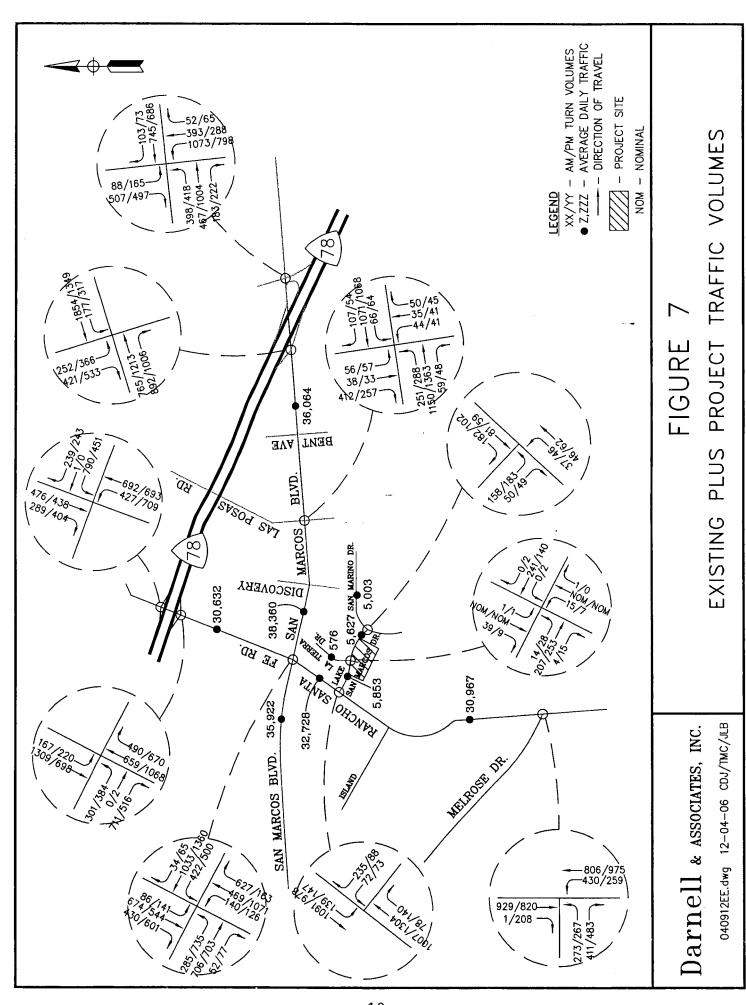


	Table 7 - Existing Plus Project Roadway Segment Level of Service Summary														
		Capacity	Exist	ing Condition	ons	Existing Plus Project Conditions									
Segment	Class	at LOS E	ADT	V/C	LOS	Project Traffic	ADT	V/C	LOS	Δ V/C	Sig?				
Rancho Santa Fe Road ^(a)															
SR-78 to San Marcos Blvd.	4MA	40,000	30,544	0.764	C	88	30,632	0.766	C	0.002	N/A				
San Marcos To Lake San Marcos	4MA	40,000	32,547	0.814	D	181	32,728	0.818	D	0.004	N/A				
Lake San Marcos to Melrose	4MA	40,000	30,909	0.773	C	58	30,967	0.774	С	0.001	N/A				
San Marcos Boulevard ^(a)															
w/o Rancho Santa Fe	4MA	40,000	35,867	0.897	D	55	35,922	0.898	D	0.001	N/A				
Rancho Santa Fe to Las Posas-	4MA	40,000	38,322	0.958	E	38	38,360	0.959	E	0.001	NO				
Las Posas Rd. to Bent	4MA	40,000	36,039	0.901	E	25	36,064	0.902	E	0.001	NO				
Lake San Marcos Drive ^(b)															
Rancho Santa Fe to La Tierra	4MA	37,000	5,614	0.152	A	239	5,853	0.158	A	0.006	N/A				
La Tierra to San Marino	4MA	37,000	5,614	0.152	A	13	5,627	0.152	A	0.000	N/A				
San Marino Drive ^(b)															
ne/o Lake San Marcos	LC	16,200	4,995	0.308	C	8	5,003	0.309	C	0.001	N/A				
La Tierra Drive ^(b)															
n/o Lake San Marcos	RS ^(c)	1,500 at LOS C	576	N/A	< C	0	576	N/A	< C	N/A	N/A				

⁽a) Segment is Located in the City of San Marcos;

⁽b) Segment is Located in the County of San Diego

⁽c) Levels of Service are not typically applied to residential streets as their primary purpose is to serve abutting lots, not carry through traffic. The capacity shown here is the recommended capacity for LOS C. (< C = Less than LOS C)

LOS = Level of Service of the critical movement; V/C= Volume to Capacity Ratio; $\Delta V/C$ = Increase (Decrease) in volume-to-capacity ratio due to the addition of the project; N/A = Not Applicable; 4MA= 4-Lane Major Arterial; LC= Light Collector; RS = Residential Street; RS = Res

Sig? = Significance based on the SANTEC/ITE Guidelines for the segments in the City of San Marcos and the County's Draft Guidelines for Determining Significance for the segments located in the County of San Diego

Intersections

The intersections were analyzed with the traffic generated from the proposed project added to existing traffic volumes. The intersections' levels of service for existing plus project conditions are summarized in Table 8. A copy of the Synchro analysis worksheets for existing plus project conditions can be found in Appendix D.

The intersections located within the City of San Marcos were analyzed using the SANTEC/ITE guidelines to determine significance. As shown in Table 8, with the exception of the Rancho Santa Fe Road/San Marcos Boulevard and Rancho Santa Fe/Melrose Drive intersections, all key intersections analyzed continue to operate at LOS D or better during both the AM and PM peak hour under existing plus project conditions. The Rancho Santa Fe Road/San Marcos Boulevard intersection operates at LOS F during the PM peak hour and the Rancho Santa Fe/Melrose Drive intersection operates at LOS E during the AM peak hour. The addition of the proposed project increases the existing delay at these intersections by 0.3 seconds or less and is, therefore, considered to be insignificant.

It should be noted that the Lake San Marcos Drive/San Marino Drive intersection operates acceptably with the existing one-way stop-control and with the community preferred all-way stop-control condition.

NEAR TERM CUMULATIVE WITHOUT PROJECT CONDITIONS

Through research through the County of San Diego and City of San Marcos, it was determined that there was one (1) other approved project (the University Commons) that would be adding traffic to the same roadway segments and intersections as the proposed project. Katz, Okitsu, and Associates (KOA) conducted a traffic study that addressed the proposed modifications to the approved University Commons project. However, for the purpose of this report, the near term cumulative conditions included the approved version of the University Commons project. (Excerpts from the KOA report are provided in Appendix B.)

To account for any additional projects that may come on-line between now and the time the proposed project is developed, D&A also added an ambient growth for a period of two years. The ambient growth factor utilized was the average yearly growth between the SANDAG 2030 Combined North County Model (CNCM) forecast volumes and the existing volumes.

The near term cumulative without project traffic daily and peak hour traffic volumes are illustrated in Figure 8.

NEAR TERM CUMULATIVE WITH PROJECT CONDITIONS

The proposed project was added onto the near term cumulative without project traffic volumes. The resulting near term cumulative with project daily and peak hour traffic volumes are illustrated in Figure 9.

Roadway Segments

The roadway segments were analyzed under near term cumulative conditions with and without the proposed project. The roadway segments daily levels of service are summarized in Table 9. As can be seen in Table 9, the following roadway segments operate at LOS E or F under near term cumulative conditions with or without the proposed project: Rancho Santa Fe Road from San Marcos Boulevard to Lake San Marcos Drive; and San Marcos Boulevard from west of Rancho Santa Fe Road to Bent Avenue.

The proposed project increases the near term cumulative without project volume-to-capacity ratio on these segments by 0.004 or less. This is less than the allowable 0.02 increase allowed per the City of San Marcos levels of significance, therefore, the proposed project is considered to be insignificant.

]	Гable 8 -	Existing	g Plus Pr	oject In	tersection	n Level	of Servic	e Summa	ıry					
Existing Conditions Existing Plus Project Conditions Critical AM Peak Hour PM Peak Hour AM Peak Hour PM Peak Hour															
Intersections		AM Pea	k Hour	PM Pea	k Hour		AM Pe	eak Hour				Pl	M Peak Ho	our	
Intersections	Movement	Delay	LOS	Delay	LOS	Delay	LOS	Δ Delay	Proj. Traffic	Sig?	Delay	LOS	Δ Delay	Proj. Traffic	Sig?
Rancho Santa Fe @ SR-78 WB Ramps (SIG) (a)	Intersection	44.3	D	39.4	D	44.5	D	0.2	5	N/A	39.5	D	0.1	4	N/A
Rancho Santa Fe @ SR-78 EB Ramps (SIG) (a)	Intersection	17.4	В	21.1	С	17.4	В	0.0	7	N/A	21.1	С	0.0	8	N/A
Rancho Santa Fe @ San Marcos Blvd. (SIG) (a)	Intersection	35.2	D	91.5	F	35.3	D	0.1	14	N/A	91.5	F	0.0	16	NO
Rancho Santa Fe @ Lake San Marcos (SIG) (a)	Intersection	10.2	В	10.1	В	10.4	В	0.2	19	N/A	10.5	В	0.4	22	N/A
Rancho Santa Fe @ Melrose (SIG) ^(a)	Intersection	60.2	E	34.0	С	60.5	E	0.3	5	NO	34.1	С	0.1	6	N/A
San Marcos Blvd. @ Las Posas (SIG) ^(a)	Intersection	18.2	В	24.5	С	18.2	В	0.0	3	N/A	24.5	С	0.0	3	N/A
San Marcos Blvd. @ SR-78 EB Ramps (SIG) ^(a)	Intersection	19.4	В	32.7	С	19.4	В	0.0	2	N/A	32.7	С	0.0	2	N/A
San Marcos Blvd. @ SR-78 WB Ramps (SIG) (a)	Intersection	31.3	С	37.1	D	31.3	С	0.0	2	N/A	37.1	D	0.0	1	N/A
Lake San Marcos @	SB Approach	9.3	A	9.0	A	9.3	A	0.0	0	37/4	9.0	A	0.0	0	37/4
La Tierra (TWSC) (b)	NB Approach	-	-	-	-	12.6	В	-	16	N/A	12.4	В	-	7	N/A
Lake San Marcos @ San Marino (OWSC) (b)	EB Approach	11.7	В	12.0	В	11.7	В	0.0	1	N/A	12.0	В	0.0	0	N/A
	EB Approach	9.2	A	9.6	A	9.2	A	0.0	1		9.6	A	0.0	0	
Lake San Marcos @ San Marino (AWSC) (b)(c)	NB Approach	8.7	Α	8.9	A	8.7	A	0.0	0	N/A	8.9	A	0.0	0	N/A
	SB Approach	9.4	A	8.7	Α	9.4	A	0.0	0		8.7	A	0.0	1	

⁽a) Intersection is Located in the City of San Marcos

⁽b) Intersection is Located in the County of San Diego

⁽c) Due to community concerns, this intersection was analyzed with AWSC as well as with the existing OWSC.

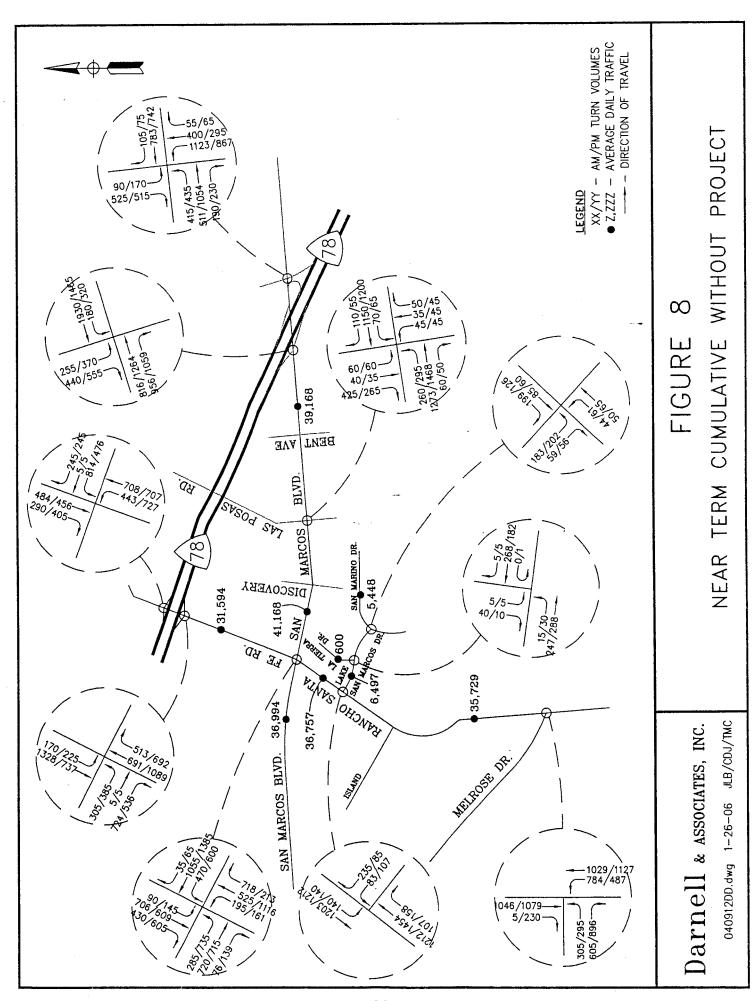
LOS = Level of Service of the critical movement; Delay is measured in seconds per vehicle; Δ Delay = Increase (Decrease) in Delay;

OWSC = One-Way Stop-Controlled; TWSC = Two-Way Stop-Controlled; AWSC = All-Way Stop-Controlled; SIG = Signalized;

EB = Eastbound; WB = Westbound; SB = Southbound; NB = Northbound;

Proj. Traffic = At signalized intersections it is the total traffic the project adds to the intersection, at unsignalized intersections it is the volume of traffic the project assigns to the critical move/approach

Sig? = Significance based on the SANTEC/ITE Guidelines for the intersection in the City of San Marcos and the County's Draft Guidelines for Determining Significance for the intersections located in the County of San Diego



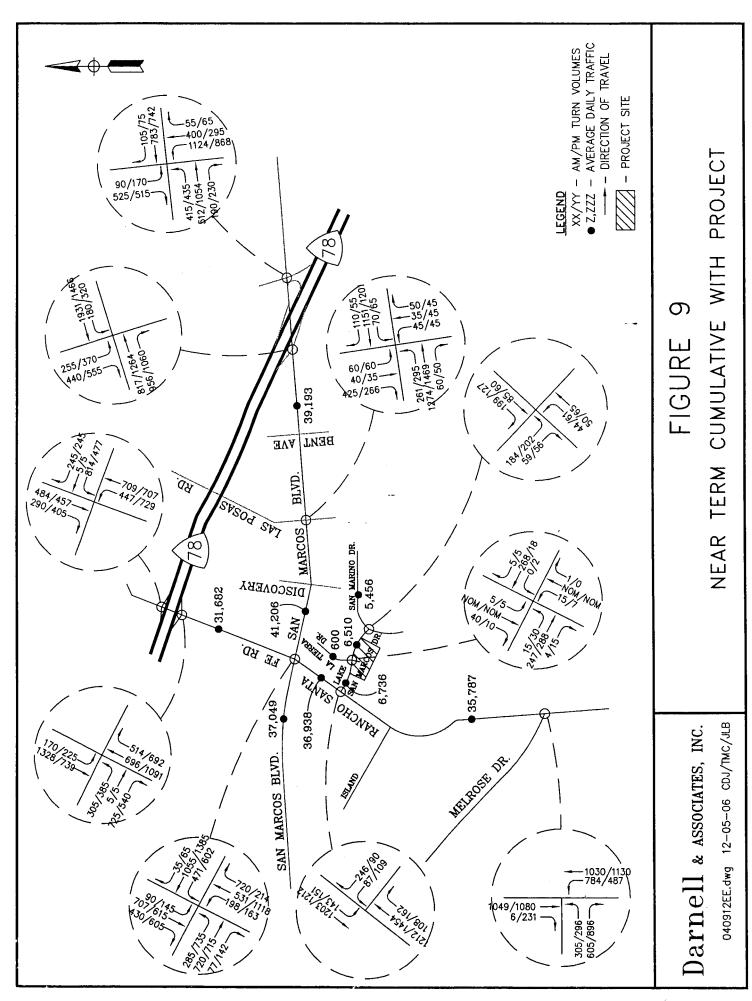


Table 9 - Near Term Cumulative Roadway Segment Level of Service Summary															
Roadway		Exi	sting (A))		Term Cu t Project			r Term Cu n Project (Cumu Contribution	lative n ⁽¹⁾ (C) - (A)	Project's Contribution (2) A) (C) - (B)		
Segment	Capacity	ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS	Increase In ADT	Δ V/C	Project Traffic	Δ V/C	Signific ant (3)
Rancho Santa Fe Road ^(a)															
SR-78 to San Marcos Blvd.	40,000	30,544	0.764	С	31,594	0.790	С	31,682	0.792	С	1,138	0.028	88	0.002	N/A
San Marcos To Lake San Marcos	40,000	32,547	0.814	D	36,757	0.919	E	36,938	0.923	E	4,391	0.109	181	0.004	NO
Lake San Marcos to Melrose	40,000	30,909	0.773	С	35,729	0.893	D	35,787	0.895	D	4,878	0.122	58	0.002	N/A
San Marcos Boulevard ^(a)															
w/o Rancho Santa Fe	40,000	35,867	0.897	D	36,994	0.925	E	37,049	0.926	E	1,182	0.029	55	0.001	NO
Rancho Santa Fe to Las Posas.	40,000	38,322	0.958	E	41,168	1.029	F	41,206	1.030	F	2,884	0.072	38	0.001	NO
Las Posas Rd. to Bent	40,000	36,039	0.901	E	39,168	0.979	E	39,193	0.980	E	3,154	0.079	25	0.001	NO
Lake San Marcos Drive ^(b)															
Rancho Santa Fe to La Tierra	37,000	5,614	0.152	A	6,497	0.176	A	6,736	0.182	A	1,122	0.030	239	0.006	N/A
La Tierra to San Marino	37,000	5,614	0.152	A	6,497	0.176	A	6,510	0.176	A	896	0.024	13	0.000	N/A
San Marino Drive ^(b)								_							
ne/o Lake San Marcos	16,200	4,995	0.308	С	5,448	0.336	С	5,456	0.337	С	461	0.029	8	0.001	N/A
La Tierra Drive ^(b)															
n/o Lake San Marcos	1,500	576	N/A	< C	600	N/A	<c< td=""><td>600</td><td>N/A</td><td><c< td=""><td>24</td><td>N/A</td><td>0</td><td>N/A</td><td>N/A</td></c<></td></c<>	600	N/A	<c< td=""><td>24</td><td>N/A</td><td>0</td><td>N/A</td><td>N/A</td></c<>	24	N/A	0	N/A	N/A

⁽¹⁾ Change in existing conditions due to the cumulative projects including the proposed project (i.e. the difference between near term cumulative with project and existing conditions)

⁽²⁾ The incremental change in conditions associated with the proposed project (i.e. the difference between near term cumulative with project and near term cumulative without project conditions)

⁽³⁾ Project Impacts assess whether the project traffic itself is significant

⁽a) Segment is Located in the City of San Marcos; (b) Segment is Located in the County of San Diego

⁽c) Levels of Service are not typically applied to residential streets. The capacity shown here is the recommended capacity for LOS C. (< C = Less than LOS C)

LOS = Level of Service of the critical movement; V/C= Volume to Capacity Ratio; Δ V/C = Increase (Decrease) in volume-to-capacity ratio due to the addition of the project;

N/A = Not Applicable; 4MA= 4-Lane Major Arterial; LC= Light Collector; RS = Residential Street; w/o = West of; n/o= North of; n/o= North of

Sig? = Significance based on the SANTEC/ITE Guidelines for the segments in the City of San Marcos and the County's Draft Guidelines for Determining Significance for the segments located in the County of San Diego

It should be noted that although the County segments of Rancho Santa Fe Road and San Marcos Boulevard were not analyzed in this report, the project will add one (1) ADT to the County segments located outside the study area that are projected to operate at unacceptable levels of service. Therefore, the project will be part of cumulative impact to the County roadway segments.

All other roadway segments continue to operate at LOS D or better under near term cumulative with and without project conditions.

Intersections

The intersections were analyzed under near term cumulative conditions with and without the proposed project. The intersections' levels of service for near term cumulative conditions are summarized in Tables 10 and 11 for the AM and PM peak hours, respectively. A copy of the Synchro analysis worksheets for near term cumulative conditions can be found in Appendix E and F.

The intersections located within the City of San Marcos were analyzed using the SANTEC/ITE guidelines to determine significance. As shown in Tables 10 and 11, with the exception of the Rancho Santa Fe Road/San Marcos Boulevard and Rancho Santa Fe/Melrose Drive intersections, all key intersections analyzed continue to operate at LOS D or better during both the AM and PM peak hour under near term cumulative with project conditions. The Rancho Santa Fe Road/San Marcos Boulevard intersection operates at LOS F during the PM peak hour and the Rancho Santa Fe/Melrose Drive intersection operates at LOS F during the AM peak hour and PM peak hours under near term cumulative conditions with or without the addition of the proposed project. The addition of the proposed project increases the near term cumulative without project delay at these intersections by 0.3 seconds or less and is, therefore, considered to be insignificant.

It should be noted that the Lake San Marcos Drive/San Marino Drive intersection operates acceptably with existing the one-way stop-control and with the community preferred all-way stop-control condition.

2030 CONDITIONS

Under 2030 conditions, it was assumed that all roadway segments were built out to their ultimate Circulation Element Classification. Figure 10 provides an illustration of the roadway segment classifications that were assumed to exist under 2030 conditions.

2030 forecast volumes were obtained from SANDAG's 2030 Combined North County Model (CNCM). SANDAG's 2030 forecast included the development of the proposed project. Therefore, to obtain the 2030 without project traffic volumes, the proposed project was subtracted from the SANDAG forecast volumes. Figure 11 illustrates the 2030 without project daily traffic volumes and Figure 12 illustrates the 2030 with project daily traffic volumes. The 2030 roadway segment level of service analysis is summarized in Table 12.

The San Marcos Boulevard and Rancho Santa Fe Road segments are located in the City of San Marcos jurisdiction thus; SANTEC/ITE guidelines were used to determine significance. As can be seen in Table 12, with the exception of Rancho Santa Fe Road between San Marcos Boulevard and Melrose Drive and San Marcos Boulevard between Rancho Santa Fe Road and Bent Avenue, all key roadway segments operate at LOS C or better under 2030 conditions with or without the addition of the proposed project. Rancho Santa Fe Road between San Marcos Boulevard and Melrose Drive operates at LOS F and the segment of San Marcos Boulevard between Rancho Santa Fe Road and Bent Avenue operates at LOS E under 2030 conditions with or without the addition of the proposed project. The proposed project increases the 2030 without project volume-to-capacity ratio on these segments by 0.005 or less and is therefore, considered to be insignificant.

Table 10 – AM Peak Hour Near Term Cumulative Intersection Level of Service Summary														
	Critical	Existi	ng (A)	Near Term Without P		Near Term Cur With Project			ve Contribution ⁽¹⁾ (C) - (A)	Project's Contribution (2) (C) - (B)				
Intersection	Movement	Delay	LOS	Delay	LOS	Delay	LOS	Δ Delay	Cum. Traffic	Δ Delay	Proj. Traffic	Cumulatively Considerable? (3)		
Rancho Santa Fe @ SR-78 WB Ramps (SIG) (a)	Intersection	44.3	D	48.6	D	49.0	D	4.7	85	0.4	5	N/A		
Rancho Santa Fe @ SR-78 EB Ramps (SIG) (a)	Intersection	17.4	В	17.7	В	17.7	В	0.3	113	0.0	7	N/A		
Rancho Santa Fe @ San Marcos Blvd. (SIG) (a)	Intersection	35.2	D	38.0	D	38.1	D	2.9	375	0.1	14	N/A		
Rancho Santa Fe @ Lake San Marcos (SIG) (a)	Intersection	10.2	В	11.8	В	12.0	В	1.8	396	0.2	19	N/A		
Rancho Santa Fe @ Melrose (SIG) ^(a)	Intersection	60.2	E	193.0	F	193.3	F	133.1	934	0.3	5	NO		
San Marcos Blvd. @ Las Posas (SIG) ^(a)	Intersection	18.2	В	18.6	В	18.6	В	0.4	245	0.0	3	N/A		
San Marcos Blvd. @ SR-78 EB Ramps (SIG) ^(a)	Intersection	19.4	В	19.8	В	19.8	В	0.4	220	0.0	2	N/A		
San Marcos Blvd. @ SR-78 WB Ramps (SIG) ^(a)	Intersection	31.3	С	32.6	С	32.6	С	1.3	192	0.0	2	N/A		
Lake San Marcos @	SB Approach	9.3	A	9.7	A	9.8	A	0.5	5	0.1	0	N/A		
La Tierra (TWSC) (b)	NB Approach	-	-	-	-	13.5	В	-	16	-	16			
Lake San Marcos @ San Marino (OWSC) (b)	EB Approach	11.7	В	12.5	В	12.5	В	0.8	36	0.0	1	N/A		
	EB Approach	9.2	A	9.8	A	9.8	A	0.6	36	0.0	1			
Lake San Marcos @ San Marino (AWSC) (b)(c)	NB Approach	8.7	A	9.0	A	9.0	A	0.3	11	0.0	0	N/A		
	SB Approach	9.4	A	9.9	A	10.0	A	0.6	21	0.1	0			

⁽¹⁾ Change in existing conditions due to the cumulative projects including the proposed project (i.e. the difference between near term cumulative with project and existing conditions)

⁽²⁾ The incremental change in conditions associated with the proposed project (i.e. the difference between near term cumulative with project and near term cumulative without project conditions)

⁽³⁾ Project Impacts assess whether the project traffic itself is a considerable portion of the total cumulative impacts

⁽a) Intersection is Located in the City of San Marcos

⁽b) Intersection is Located in the County of San Diego

⁽c) Due to community concerns, this intersection was analyzed with AWSC as well as with the existing OWSC.

LOS = Level of Service of the critical movement; Delay is measured in seconds per vehicle; Δ Delay = Increase (Decrease) in Delay; > 15 min = Delay exceeds 15 minutes (1,800 seconds)

OWSC = One-Way Stop-Controlled; TWSC = Two-Way Stop-Controlled; AWSC = All-Way Stop-Controlled; SIG = Signalized; EB = Eastbound; WB = Westbound; SB = Southbound; NB = Northbound; Proj. Traffic = At signalized intersections it is the total traffic the project adds to the intersection, at unsignalized intersections it is the volume of traffic the project assigns to the critical move/approach Sig? = Significance based on the SANTEC/ITE Guidelines for the intersection in the City of San Marcos and the County's Draft Guidelines for Determining Significance for the intersections located in the County of San Diego

Table 11 - PM Peak Hour Near Term Cumulative Intersection Level of Service Summary												
Intersection	Critical Movement	Existing (A)		Near Term Cumulative Without Project (B)		Near Term Cumulative With Project (C)		Cumulative Contribution ⁽¹⁾ (C) - (A)		Project's Contribution ⁽²⁾ (C) - (B)		
		Delay	LOS	Delay	LOS	Delay	LOS	Δ Delay	Cum. Traffic	Δ Delay	Proj. Traffic	Cumulatively Considerable? (3)
Rancho Santa Fe @ SR-78 WB Ramps (SIG) (a)	Intersection	39.4	D	42.4	D	42.7	D	3.3	91	0.3	4	N/A
Rancho Santa Fe @ SR-78 EB Ramps (SIG) (a)	Intersection	21.1	С	21.5	С	21.6	С	0.5	127	0.1	8	N/A
Rancho Santa Fe @ San Marcos Blvd. (SIG) (a)	Intersection	91.5	F	94.0	F	94.2	F	2.7	434	0.2	16	NO
Rancho Santa Fe @ Lake San Marcos (SIG) (a)	Intersection	10.1	В	12.6	В	13.0	В	2.9	470	0.4	22	N/A
Rancho Santa Fe @ Melrose (SIG) ^(a)	Intersection	34.0	С	144.3	F	144.3	F	110.3	1114	0.0	6	NO
San Marcos Blvd. @ Las Posas (SIG) ^(a)	Intersection	24.5	С	24.6	С	24.6	С	0.1	275	0.0	3	N/A
San Marcos Blvd. @ SR-78 EB Ramps (SIG) (a)	Intersection	32.7	С	33.3	С	33.3	С	0.6	253	0.0	2	N/A
San Marcos Blvd. @ SR-78 WB Ramps (SIG) ^(a)	Intersection	37.1	D	38.4	D	38.4	D	1.3	234	0.0	1	N/A
Lake San Marcos @ La Tierra (TWSC) ^(b)	SB Approach	9.0	A	9.9	A	10.1	В	1.1	5	0.2	0	N/A
	NB Approach	-	-	-	-	13.3	В	-	7	-	7	
Lake San Marcos @ San Marino (OWSC) (b)	EB Approach	12.0	В	13.1	В	13.1	В	1.1	26	0.0	0	N/A
Lake San Marcos @ San Marino (AWSC) (b)(c)	EB Approach	9.6	A	10.2	В	10.2	В	0.6	26	0.0	0	
	NB Approach	8.9	A	9.4	A	9.4	A	0.5	18	0.0	0	N/A
	SB Approach	8.7	A	9.1	A	9.1	A	0.4	27	0.0	1	

⁽¹⁾ Change in existing conditions due to the cumulative projects including the proposed project (i.e. the difference between near term cumulative with project and existing conditions)

⁽²⁾ The incremental change in conditions associated with the proposed project (i.e. the difference between near term cumulative with project and near term cumulative without project conditions)

⁽³⁾ Project Impacts assess whether the project traffic itself is a considerable portion of the total cumulative impacts

⁽a) Intersection is Located in the City of San Marcos

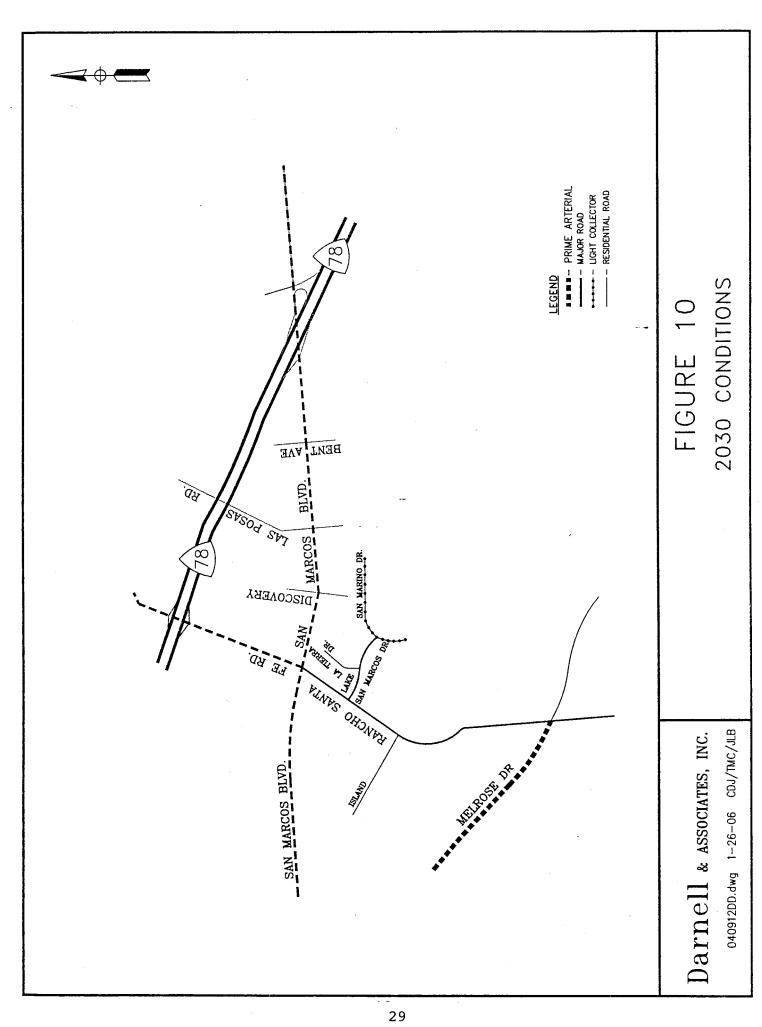
⁽b) Intersection is Located in the County of San Diego

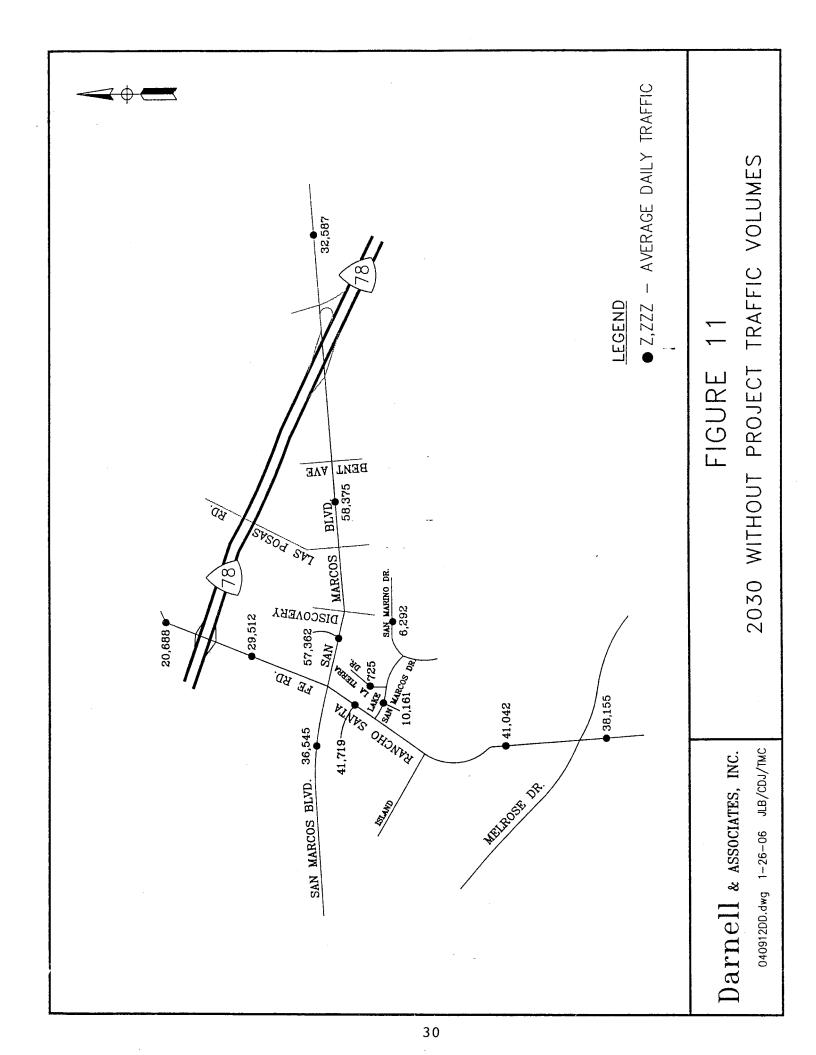
⁽c) Due to community concerns, this intersection was analyzed with AWSC as well as with the existing OWSC.

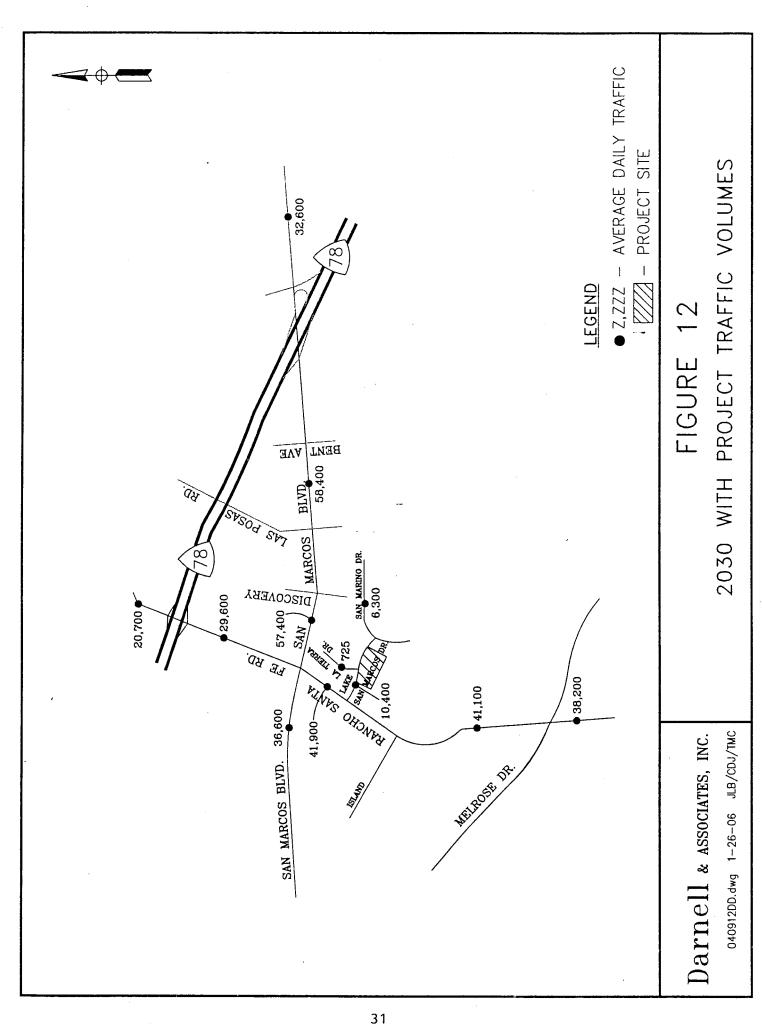
LOS = Level of Service of the critical movement; Delay is measured in seconds per vehicle; Δ Delay = Increase (Decrease) in Delay; > 15 min = Delay exceeds 15 minutes (1,800 seconds)

OWSC = One-Way Stop-Controlled; TWSC = Two-Way Stop-Controlled; AWSC = All-Way Stop-Controlled; SIG = Signalized; EB = Eastbound; WB = Westbound; SB = Southbound; NB = Northbound; Proj. Traffic = At signalized intersections it is the total traffic the project adds to the intersection, at unsignalized intersections it is the volume of traffic the project assigns to the critical move/approach

Sig? = Significance based on the SANTEC/ITE Guidelines for the intersection in the City of San Marcos and the County's Draft Guidelines for Determining Significance for the intersections located in the County of San Diego







		Tabl	e 12 - 2030	0 Roadway	y Segmen	t Level of S	Service Sum	nmary			
		Conscity	2030) without Pr	oject			2030 Wit	h Project Conditi	ions	
Segment	Class	Capacity at LOS E	ADT	V/C	LOS	Project Traffic	ADT	V/C	LOS	Δ V/C	Sig?
Rancho Santa Fe Road ^(a)											
SR-78 to San Marcos Blvd.	6PA	60,000	29,512	0.492	A	88	29,600	0.493	A	0.001	N/A
San Marcos To Lake San Marcos	4MA	40,000	41,719	1.043	F	181	41,900	1.048	${f F}$	0.005	NO
Lake San Marcos to Melrose	4MA	40,000	41,042	1.026	F	58	41,100	1.028	${f F}$	0.002	NO
San Marcos Boulevard ^(a)											
w/o Rancho Santa Fe	6PA	60,000	36,545	0.609	В	55	36,600	0.610	В	0.001	N/A
Rancho Santa Fe to Las Posas.	6PA	60,000	57,362	0.956	E	38	57,400	0.957	E	0.001	NO
Las Posas Rd. to Bent	6PA	60,000	58,375	0.973	E	25	58,400	0.973	${f E}$	0.000	NO
Lake San Marcos Drive ^(b)											
Rancho Santa Fe to La Tierra	4MA	37,000	10,161	0.275	A	239	10,400	0.281	A	0.006	N/A
La Tierra to San Marino	4MA	37,000	10,387	0.281	A	13	10,400	0.281	A	0.000	N/A
San Marino Drive ^(b)											
ne/o Lake San Marcos	LC	16,200	6,292	0.388	С	8	6,300	0.389	С	0.001	N/A
La Tierra Drive ^(b)											
n/o Lake San Marcos	RS ^(c)	1,500 at LOS C	725	N/A	< C	0	725	N/A	< C	N/A	N/A

⁽a) Segment is Located in the City of San Marcos;

⁽b) Segment is Located in the County of San Diego

⁽c) Levels of Service are not typically applied to residential streets as their primary purpose is to serve abutting lots, not carry through traffic. The capacity shown here is the recommended capacity for LOS C. (< C = Less than LOS C)

 $LOS = Level \ of \ Service \ of \ the \ critical \ movement; \ V/C = Volume \ to \ Capacity \ Ratio; \\ \Delta \ V/C \ = Increase \ (Decrease) \ in \ volume-to-capacity \ ratio \ due \ to \ the \ addition \ of \ the \ project; \\ N/A = Not \ Applicable; \\ A = Not \ Applicabl$

⁶PA = 6-Lane Prime Arterial; 4MA= 4-Lane Major Arterial; LC= Light Collector; RS = Residential Street; w/o = West of; n/o= North of; ne/o= North East of

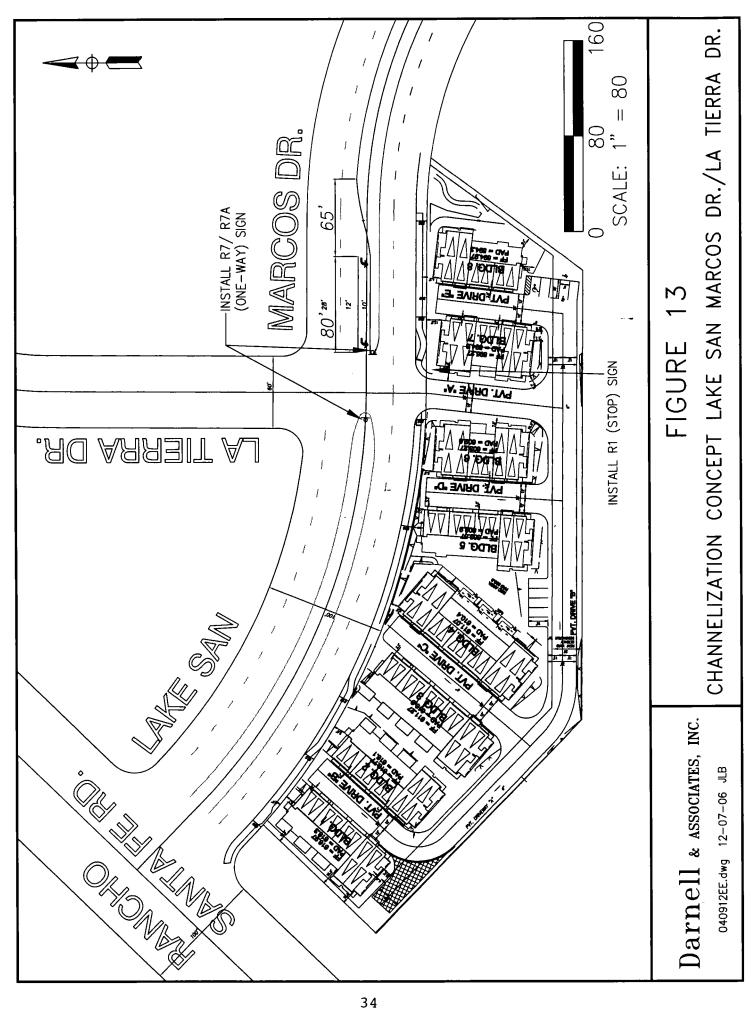
Sig? = Significance based on the SANTEC/ITE Guidelines for the segments in the City of San Marcos the County's Draft Guidelines for Determining Significance for the segments located in the County of San Diego

SECTION V - PROJECT ACCESS/CIRCULATION

The project proposes to provide one (1) access point off of Lake San Marcos Drive. The access point, Driveway "D" is located across from La Tierra Drive and will provide full-unrestricted access. Driveway "D" will provide one lane of ingress and one-lane of egress and will be stop-controlled on the access approach. To enhance traffic flow along Lake San Marcos Boulevard, the applicant proposes to modify the existing median on Lake San Marcos Boulevard to add a westbound left turn lane at La Tierra Drive. Figure 13 shows the median modifications. As was shown in Figure 9, with the addition of the project it is estimated that there will be a demand of 2 peak hour trips making the westbound turn at La Tierra Drive. With the proposed average vehicle requiring 25 feet (25') to 29 feet (29') of storage, the estimated queue length for the westbound left turn lane is expected to be 50-58 feet. Therefore, the proposed 80 foot westbound left turn pocket will adequately accommodate the projected demand. The Lake San Marcos Boulevard/La Tierra Drive/Driveway "D" access point was analyzed in Section IV and found to operate at LOS B or better under near term cumulative with project conditions (see Tables 10 and 11).

The residents of the community have requested that all-way stop-control be installed at the Lake San Marcos Boulevard/San Marino Drive intersection. Presently and under near term cumulative conditions, the critical movements at the intersection operate at LOS B in the AM and PM peak periods with the existing one-way stop-control (see Tables 10 and 11).

To determine if all-way stop-control is warranted, D&A prepared all-way stop-control warrant analysis utilizing the criteria outlined in the Manual of Uniform Traffic Control Devices (MUTCD). Evaluation of the minimum volume required to warrant all-way stop-control found that all-way stop-control warrants are not warranted under existing or near term cumulative conditions. (A copy of the all-way stop-control warrant worksheets are provided in Appendix G.) Discussion with County staff found that consideration of all-way stop-control was previously considered by the County's Traffic Advisory Committee (TAC) in February 2001 and was not approved at that time. A copy of the TAC report is provided in Appendix G.



SECTION VI - PROJECT MITIGATION

MITIGATION

The proposed project does not significantly impact any roadway segment or intersection analyzed; therefore, mitigation by the proposed project is not required. However, as part of the of the development of the proposed project, the developer proposes to modify the median on Lake San Marcos Drive at La Tierra Drive to provide a westbound left turn lane. See Figure 13 for the modified median design on Lake San Marcos Drive at La Tierra Drive.

It should be noted that the project will add traffic to County Roadway segments that were not analyzed in this report, but are known to operate below LOS D. Therefore, the project will be part of a cumulative impact to the County roadway segments.

COUNTY OF SAN DIEGO TRANSPORTATION IMPACT FEE (TIF)

The County of San Diego has developed an overall programmatic solution that addresses existing and projected future road deficiencies in the unincorporated portion of San Diego County. This program includes the adoption of a Transportation Impact Fee (TIF) program to fund improvements to roadways necessary to mitigate potential cumulative impacts caused by traffic from future development. Based on SANDAG regional growth and land use forecasts, the SANDAG Regional Transportation Model was utilized to analyze projected build-out (year 2030) development conditions on the existing circulation element roadway network throughout the unincorporated area of the County. Based on the results of the traffic modeling, funding necessary to construct transportation facilities that will mitigate cumulative impacts from new development was identified. Existing roadway deficiencies will be corrected through improvement projects funded by other public funding sources, such as TransNet, gas tax, and grants. Potential cumulative impacts to the region's freeways have been addressed in SANDAG's Regional Transportation Plan (RTP). This plan, which considers freeway build out over the next 30 years, will use funds from TransNet, state and federal funding to improve freeways to projected level of service objectives in the RTP.

The proposed project generates 252 ADT. These trips will be distributed on circulation element roadways in the County that were analyzed by the TIF program, some of which currently or are projected to operate at inadequate levels of service. These project trips therefore contribute to a potential significant cumulative impact and mitigation is required. The potential growth represented by this project was included in the growth projections upon which the TIF program is based. Therefore, payment of the TIF, which will be required at issuance of building permits, in combination with other components of the program described above, will mitigate potential cumulative traffic impacts to less than significant.

As seen below in Table 13, based on the fees for the North County Metro area (last updated March 7, 2006) the TIF for the proposed project will be \$188,370. It should be noted that the actual fee is subject to change as the TIF Ordinance is updated annually and the fees are adjusted to reflect the engineering cost index. The developer has agreed to pay the TIF to mitigate the project's potential cumulative impacts to the County roadway segments.

Table	13 – Transportation Impa	act Fee (TIF) Summary	
Land Use	Number of Units	Cost per Unit ^(a)	Total Cost
Multi-Family Condominiums	42	\$4,485	\$188,370

⁽a) Fees as of March 7, 2006

Note: The actual fee is subject to change as the TIF Ordinance is updated annually and the fees are adjusted to reflect the engineering cost index

Total Cost = Cost per Unit × Number of Units.

SECTION VII - SUMMARY OF FINDINGS AND CONCLUSIONS

- The applicant proposes to construct 42 multi-family condominium units at the southeast corner of Rancho Santa Fe Road and Lake San Marcos Drive in the San Marcos area of San Diego County.
- The proposed project is estimated to generate 252 average daily trips, 20 morning peak hour trips, and 23 afternoon peak hour trips.
- The proposed project does not significantly impact any of the key roadway segments or intersections analyzed.
- Although the segments were not analyzed in this report it is known that the proposed project will add one (1) ADT to County roadway segments that currently or are projected to operate at an unacceptable LOS. Therefore, the project is considered to be part of the cumulative impacts to these County roadway segments.
- As mitigation for its cumulative impacts to the County roadway segments, the project proposes to pay the County TIF fee in the amount of \$188,370 based on the current fee for the North County Metro area of \$4,485 per multi-family dwelling unit (last updated March 7, 2006). It should be noted that the actual fee is subject to change as the TIF Ordinance is updated annually and the fees are adjusted to reflect the engineering cost index.
- As part of the of the development of the proposed project, the developer proposes to modify the median on Lake San Marcos Drive at La Tierra Drive to provide a westbound left turn lane.
- The Lake San Marcos Boulevard/La Tierra Drive/Driveway "D" access point was found to operate at LOS B or better under near term cumulative with project conditions.

APPENDIX A

> 24-Hour Segment Counts

➤ AM/PM Peak Hour Turn Counts

> Summary of County of San Diego Public Road Standards

➤ City of San Marcos Level of Service Standards

> City of San Marcos Urban Street Design Criteria

> Excerpts from the County of San Diego's Public Facilities Element

> Excerpts from the SANTEC/ITE Guidelines

> Excerpts from the County's Guidelines for Determining Significance

> County TIF - North County Metro Fee Schedule

24-Hour Segment Counts

CILY, JUIL DIGGO

i ii

Volumes for: Tuesday, September 21, 2004

City: San Diego

Project #: 04-4301-002

i				•	per 21, 20			: San Diego					Project #	: 04-4.	301-00	2
							s Blvd & Lak									
AM Peric		}	SE		EB	<u>WB</u>		PM Period			SB		EB	WB		
00:00	41		39					12:00	220		256					
00:15	19		25					12:15	252		275					
00:30	17	01	59				225	12:30	273		280					
00:45	14	91	11				225	12:45	274	1019	286	1097	 			2116
01:00	13		61					13:00	246		254					
01:15	9		8					13:15	278		245					
01:30 01:45	14 14	50	18 <i>7</i>	94			144	13:30	239	1000	270	1070				
02:00	 1 ' -		′	J-T			177	13:45	245	1008	270	1039				2047
02:15	. 8		3					14:00 14:15	272 270		252 258					
02:30	4		7					14:13	291		293					
02:45	8	26	8	23			49	14:45	238	1071	308	1111	,	• •		2182
03:00	5	***********	14					15:00	261		282					2102
03:15	10		3					15:15	235		294					
03:30	5		· 14					15:30	267		297					
03:45	9	29	4	35			64	15:45	256	10.19	266	1139				2158
04:00	7		4					16:00	338		286					
04:15	13		8					16:15	290		262				• .	
04:30	20		14					16:30	266		310					
04:45	30	70	15	41			111	16:45	299	1193	275	1133	·			2326
05:00	49		24					17:00	313		248					
05:15	57		30					17:15	324		257					
05:30	69		37					17:30	339		265					
05:45	130	305	54	145	· · · · · · · · · · · · · · · · · · ·		450	17:45	335	1311	270	1040				2351
06:00	238		75					18:00	269		243					
06:15	246 274		93 112					18:15	255		208					
06:30 06:45		1110		408			1518	18:30	277 236	1027	206	074				1011
07:00	298	****	254	100			1310	18:45		1037	217	874	· · · · · · · · · · · · · · · · · · ·			1911
07:00	,314		232					19:00 19:15	218 216		246 193					
07:30	271		248					19:30	208		193					
07:45		1185	286	1020			2205 .	19:45	184	826	169	801				1627
08:00	250		317		*****	·		20:00	194		149					1027
08:15	262		274					20:15	136		141					
08:30	260		306					20:30	135		116	•				
08:45	281	1053	406	1303			2356	20:45	150	615		518				1133
09:00	236		343					21:00	129		104					
09:15	269		300					21:15	159		101					
09:30	225		278		•			21:30	156		97					
09:45	226	956	258	1179			2135	21:45	116	560	94	396				956
10:00	224		231					22:00	131		66					
10:15	204		217					22:15	95		69					
10:30	235	000	248					22:30	69		73					
10:45	220	883		907			1790	22:45	55	350	70	278				628
11:00	215		221					23:00	41		71					
11:15	207		230					23:15	42		44					
11:30 11:45	217 208	847	215 208	874	•		1721	23:30 23:45	44 34	161	46 22	183				344
					·········			را , رے								
Total Vol.		6605		6163			12768			10170		9609				19779
										NO		CD.	Daily To	otals	N/C	Constitution of
										NB		SB	EB		WB	Combined
					A 1.4					16775		15772		-		32547
Split %	-	51.7%		48.3%	AM		39.2%		-	51.4%		10 60/	РМ	<u> </u>	 	60.8%
											·	48.6%				
Peak Hour		06:30		08:30			08:30			17:00		14:45				17:00
Volume		1238		1355			2401			1311		1181	•			2351
P.H.F.		0.88		0.83			0.87			0.97		0.96				0.97

City: San Diego

Project #: U4-43U1-UU3

Location	: Rar	icho S	anta	Fe Rd	Btwn L	ake San	Marcos Dr &	Melrose Dr								
AM Period	d NB		SB	<u> </u>	EB	WB		PM Period	NB		SB		EB	WB		
00:00	24		27					12:00	199		207					
00:15	31		27					12:15	196		207					
00:30	12		54					12:30	188		221					
00:45	9	76	15	123			199	12:45	190	773	227	862				1635
01:00	9		55					13:00	229		222					
01:15	6		10					13:15	209		185					
01:30	7		8					13:30	218		217					
01:45	7	29	6	79		,	108	13:45	200	856	215	839				1695
02:00	6		4					14:00	216		221			-		
02:15	3		1					14:15	- 226		203					
02:30	2		1					14:30	252		229					
02:45	5	-16	7	13			29	14:45	243	937	273	926				1863
03:00	0		11					15:00	226		326					
03:15	5		5		•			15:15	242		314					
03:30	5		8			•		15:30	268		323					
03:45	8	18	5	29			47	15:45	262	998	304	1267				2265
04:00	5							16:00	318		409				-	
04:00	3		1					16:15	369		372					
			4									45		 .		
04:30	12 24	11	5 7	17			- 61	16:30	277	1250	381	1522				2791
04:45		44		1/			61	16:45	294	1258	371	1533				2/31
05:00	43		17					17:00	307		369					
05:15	53		22				•	17:15	307		315					
05:30	63		26					17:30	330		368					
05:45	90	249	30	95			344	17:45	398	1342	368	1420				2762
06:00	171		52			•		18:00	259		293					
06:15	267		86					18:15	262		276					
06:30	265		89					18:30	292		238					
06:45	341	1044	110	337			1381	18:45	239	1052	252	1059	·			2111
07:00	348		192					19:00	186		225					
07:15	231		229					19:15	158		191					
07:30	196		239					19:30	177		177					
07:45	255	1030	283	943			1973	19:45	176	697	158	751 ,				1448
08:00	221		326			,		20:00	140		134					
08:15	266		282					20:15	146		131					
08:30	218		293					20:30	108		115					
08:45	268	973		1265			2238	20:45	105	499	97	477	•			976
09:00	206		273					21:00	135	•	92					
09:15	225		335					21:15	140		100					
09:30	225		215					21:30	114		88					
09:45	216	872		1061			. 1933	21:45	124	513	79	359	•			872
		3/2		7001		- , . , 	1900					ردد		.,		
10:00	186		210		•			22:00	106		83 46					
10:15	211		211					22:15	88		46					
10:30	201	70 /	205	0.47	•			22:30	64	204	83	274				cac
10:45	196	794	221	847			1641	22:45	46	304	59	271				575
11:00	188		218				,	23:00	39		66					
11:15	196		220					23:15	24		52					
11:30	201		217					23:30	36		40		•			24.0
11:45	197	782	215	870			1652	23:45	36	135	17	175				310
Total Vol.		5927		5679			11606			9364		9939				19303
												*	Daily To	otals		
										NB		SB	EB		WB	Combined
										15291		15618				30909
						A				17671		25010	PM	A		20303
Calle n/		E1 +0/		49.00	AN	<u>'1</u>	37.5%	 -		48.5%		C1 E0/	12 la	1		62.5%
Split %		51.1%		48.9%			37.3%	<u> </u>				51.5%				
Peak Hour	•	0 6 :15	-	08:00			08:00			17:00		16:00				16:00
Volume		1221		1265			2238			1342		1533	•			2791
P.H.F.		98.0		0.37			0.89			0.97		0.94				0.94

Volumes for: Tuesd	• • •		-				: San Diego			Pro	oject #:	04-4	301-004	ŀ
Location: San Mare		W/o Ra	ancho			d.								
AM Period NB	SB	EB		WB			PM Period	NB	SB	EB		WB		**************************************
00:00		52		17			12:00			255		264		
00:15		32		20			12:15			251		210		
00:30		31		13			12:30			281		250		
00:45		26	141	13	63	204	12:45	·		278	1065	282	1006	2071
01:00		20		17			13:00			227		291		
01:15		14		12			13:15			233		309		
01:30		19	4-	10			13:30			247		279		
01:45		9	62	10	49	111	13:45			250	957	274	1153	2110
02:00		12		10			14:00			268		264		
02:15		4		9			14:15			233		277		
02:30		20	477	9	20	0.5	14:30			266		248		
02:45	·	11	47	10	38	85	14:45			262	1029	215	1004	2033
' 03:00		16		11			15:00			356		285		
03:15		12		3			15:15			348		283		
03:30		13		18			15:30			355		324		
03:45		19	60	9	41	101	15:45			321	1380	273	1165	2545
04:00		8		16			16:00			359		519		
04:15		12		21			16:15			340		524 -	- .	
04:30		8		24		4.60	16:30			358		556		
04:45		. 24	52	56	117	169	16:45			395	1452	488	2087	3539
05:00		20		118			17:00			379		480	٠	
05:15		26		95			17:15			385		527		
05:30		33	444	113		caa	17:30			374	0.4	573	2050	2544
05:45		32	111	195	521	632	17:45			356	1494	470	2050	3544
06:00		45		371			18:00			361		283		
06:15		63		236			18:15			390		226		
06:30 06:45		74 100	282	305 381	1293	1575	18:30 18:45		-	331 323	1405	224 225	958	2363
			202		1233	13/3					1403		330	2303
07:00		129 183		475 416			19:00			247		164		
07:15 07:30		196		420			19:15 19:30			194		183 190		
07:45		239	747		1676	2423	19:45			18,1 170	792	168	705	1497
			, ,,	336	10/0	2123		· · · · · · · · · · · · · · · · · · ·			132		793	1137
08:00 08:15		332 295		286			20:00 20:15			143 127		155 151		
08:30		307		318			20:15			117		139		
08:45			1284		1270	2554	20:45			100	487	144	589	1076
		242	1201	310						88		148		10/0
09:00 09:15		182		373			21:00 21:15			88		129		
09:30		173		320			21:30			88		133		
09:45		213	810		1257	2067	21:45			73	337	144	554	891
10:00		185		255			22:00			59		109		
10:15		184		244			22:15			53		103		
10:30		198		229			22:30			85		60		
10:45		232	799	229	957	1756	22:45		•	59	256	57	329	585
11:00		206		215			23:00			54		46		
11:15		159		194			23:15			- 34		.30		
11:30		212		184			23:30			59		40		
11:45			797	219	812	1609	23:45			34	181	30	146	327
		7-7-		***					· · · · · · · · · · · · · · · · · · ·					
Total Vol.			5192		8094	13286					10835		11746	22581
								NE	3	SB	Daily To EB	tais	WB	Combined
								141	 					
											16027		19840	35867

AM PM Split % 39.1% 60.9% **37.0%** 48.0% 52.0% 63.0% 00:00 08:00 Peak Hour 06:45 16:45 16:00 16:45 1692 0.89 1533 0.97 1284 2554 3601 Volume 2087 P.H.F. 0.92 0.94 0.94 0.95

Location: AM Period		Blvd SB	Btwn R EB	ancho	Sant WB		d & Las I	Posas Rd PM Period	NB	SB		EB		WB		
00:00		 	70		31			12:00				243		324		
00:15			64		24			12:15				242		322		
00:30			54		22			12:30				237.		332		
00:45			40	228	27	104	332	12:45				241	963	326	1304	2267
01:00			41		18			13:00				275		268		
01:15			21		13			13:15				288		285		
01:30			25		20			13:30				255		289		•
01:45			9	96	13	64	160	13:45				272	1090	281	1123	2213
02:00			11		10			14:00				266		299		
02:15			6		14			14:15				256		303		
02:30			22		12			14:30				264		326		
02:45			13	52	12	48	100	14:45				241	1027	349	1277	2304
03:00			20		12	-		15:00				232		412		
03:15		•	21		10			15:15				218		383		
03:30			14		20			15:30				241		397		
03:45			13	68	. 12	54	122	15:45				244	935	378	1570	2505
04:00			14		24			16:00				232		477		
04:00			7		23			16:15				247		471		
04:13			10		32			16:30				226		45 9		
04:45	•		25	56	74	153	209	16:45				226	931	486	1893	2824
	-						203				•				1033	
05:00			29		125			17:00				232		465		
05:15			42		85 162		-	17:15				252 258		461 453		
05:30			48 54	172	245	617	790	17:30 17:45				223	965	448	1827	2792
05:45				173		017	/ 90						303		1027	2/32
06:00	***		87		359			18:00				235		428		
06:15			91		295			18:15				203		465		
06:30			126	440	373	1412	1001	18:30				218 200	856	394 406	1693	2549
06:45		 	144	448		1413	1861	18:45		 			020		1093	2343
07:00			234		438			19:00				190		311	2	
07:15			248		409			-19:15				181		267		
07:30			291	4070	397	1501	2.672	19:30				179	710	246	1050	1760
07:45		 ··		1079	-	1594	2673	19:45	.			168	718	226	1050	1768
08:00	, A.,		412		, 292			20:00				172		212		
. 08;15			332		256			20:15				139		174		
08:30			396		346			20:30				149		158		
08:45		 	425	1565	366	1260	2825	20:45				132	592	150	694	1286
09:00			347		298			21:00				159		155		
09:15			243		370			21:15				139		121		
09:30			254		329			21:30				147		100		
09:45		 	279	1123	295	1292	2415	21:45				115	560	104	480	1040
10:00			228		293			22:00				124		85		
10:15			243		289			22:15				90		90		
10:30			273		254			22:30				60		106		
10:45		 	235	979	246	1082	2061	22:45				51	325	109	390	715
11:00			272		225			23:00				49		73		
11.15			273		251			23:15				34		68	•	
11:30			281		270			23:30				43		64		
11:45			270	1096	265	1011	2107	23:45				34	160	39	244	404
Total Vol.			,	6963		8692	15655						9122		13545	22667
10001 1017	•			0,500		0052						r	Daily To	stale		
									N	18	SB	L	EB	Julis	WB	Combined
										<u> </u>			16085		22237	38322
				A 84									bM 10002		LLL1	
Cults of	· 	 		AM		EE Env	40.9%						40.2%		59.8%	59.1%
Split %		 ·		44.5%		33,3%										
Peak Hour				00:30		06:45	08:00						13.00		16:00	16:45
Volume			÷	1565		1630	2825						1090		1893	2833
P.H.F.				0.92		0.93	0.89						0.95		0.97	0.99

Volumes for: Tuesday, September 21, 2004

City: San Diego

Project #: 04-4301-006

AM Period N	an Marcos Blvd IB SB	EB		WB			PM Period	NB	SB	······································	EB		WB.		
00:00		60		20			12:00				252		276		
00:15		50		28			12:15				275		275		
00:30		67	•	26			12:30				293		271		
00:45	 	50	227	17_	91	318	12:45				295	1115	266	1088	2203
01:00		61		15	•		13:00				270		263		
01:15		20		17			13:15				260		297		
01:30		31		13			13:30				286		282		
01:45		11	123	17	62	185	13:45				248	1064	304	1146	2210
02:00		15		14			14:00				274		283		
02:15	•	7		10			14:15				280		266		
02:30		20		16			14:30				298		264		2
02:45	· · · · · · · · · · · · · · · · · · ·	8	50	8	48	98	14:45				299	1151	240	1053	2204
03:00		30		14			15:00				321		278		
03:15		14		12			15:15				310		288		
03:30		16		22	•		15:30				349		264		
03:45		16	76	11	59	135	15:45				329	1309	269	1099	2408
04:00		7		22			16:00				458		273		
04:15		- 17		24			16:15				460		252	- . '	
04:30		13		32			16:30				428		256		
04:45		19	56	50	128	184	16:45				448	1794	249	1030	2824
05:00		18		105			17:00				451		286		
05:15		40		88			17:15				412		316		
05:30		45		104			17:30				441		309		
05:45		47	150	189	486	636	17:45				427	1731	256	1167	2898
06:00		74		300		•	18:00			•	332		275		
06:15		91		273			18:15				156		237		
06:30		104		268			18:30				300		263		
06:45		123	392		1135	1527	18:45				322	1110	214	989	2099
07:00		222		392		-	19:00				289		200		
07:15		256		324			19:15				231		192		
07:30		250		315		*	19:30				230		220		
07:45		313	1041		1316	2357	19:45				189	939	190	802	1741
		308	10.2	245			20:00				188		190		
08:00		374		202			20:00				167		180		
08:15		335		293			20:30				154		141		
08:30 08:45		347	1364		1050	2414	20:45				132	641	141	652	1293
			1307		1030	2.72.7					147		160		
09:00		272		304			21:00				146		131		
09:15		268 242		316 274			21:15 21:30				117		126		
09:30		242	1028	258	1152	2180	21:45				124	534	134	551	1085
09:45			1026		1132	2100									
10:00		228		287			22:00				104		124		
10:15		235		267			22:15				83	•	105		
10:30		245	001	247	1041	2022	22:30				103 110	400	74 68	371	771
10:45		273	981	240	1041	2022	22:45					400		3/1	771
11:00		124		157			23:00				99		63		
11:15		241		253			23:15				50		45		
11:30		253	207	245	003	1777	23:30				85 48	าดา	39 41	188	470
11:45		267	885	237	892	1777	23:45				40	282	-47	100	770
Total Vol.			6373		7460	13833						12070		10136	22206
												aily T	otals		
								N	IB	SB		EB		WB	Combine
												18443		17596	36039
			AM									PM		- - -	
Split %		·	46.1%		53 00%	38.4%	. •		 		-	54.4%		45.6%	61.6%
				÷			· · · · · · · · · · · · · · · · · · ·	-							
Peak Hour	* *		08:00		06:45	08:30						16:00		17:00	16:45
Volume			1364		1325	2445				٠		1794		1167	2912 0.97
			0.91		0.85	0.93						0.98		0.92	

SB

AM Period NB

00:00

00:15

00:30

00:45

01:00 01:15

01:30

01:45

02:00

02:15

02:30 02:45

03:00

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09:00

09:15

09:30

09:45

10:00

10:15

10:30

10:45

11:00

11:15

11:30

11:45

Total Vol.

Location: Lake San Marcos Dr Btwn Rancho Santa Fe Rd & San Marino Dr

WB

EΒ

City: San Diego

PM Period

12:00

12:15

12:30

12:45

13:00

13:15

13:30

13:45

14:00

14:15

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14:45

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21:00

21:15

21:30

21:45

22:00

22:15

22:30

22:45

23:00

23:15

23:30

23:45

4					Daily Total	ls	
			NBNB	SB	EB	WB	Combined
					2613	3001	5614
	AM				₽M		
Split %	43.9%	56.1% 39.4%			48.2%	51.8%	60.6%
Peak Hour	08:00	08:00 08:00			16:45	16:45	16:45
Volume	232	288 520			257	302	559
P.H.F.	0.94	0.82 0.92			0.87	0.79	0.85

Volumes fo							City: 5	San Diego	·			Pro	ject #:	04-4	301-008	
Location: 5		-		San M			<u>,</u>	DM D		6.5						
AM Period	<u>NR</u>	SB	<u>EB</u>		WB	<u> </u>	<u> </u>	PM Period	NB	SE	3	_ <u>EB</u>	······································	WB		
00:00			2		4			12:00				50		46		
00:15			1		0			12:15				45		45		
00:30			0		2	0	12	12:30				47	102	42	175	252
00:45		-	1	4	3	9	13	12:45				41	183	42	175	358
01:00			2		0			13:00				28		59		
01:15			0		1			13:15				30		53		
01:30			3		2			13:30				40		38		
01:45			1	6	0	3	9	13:45				43	141	40	190	331
02:00			0		0			14:00				42		39		
02:15			2		0			14:15				44		46		
02:30			0		2			14:30	•			45		54		
02:45		· · · · · · · · · · · · · · · ·	Ō	2	0	2	4	14:45				43	174	50	189	363
03:00			. 0		1			15:00				53		52		
03:15			0		1			15:15				44		45		
03:30			1	•	0			15:30				59		44		
03:45			1	2	1	3	5	15:45				65	221	44	185	406
04:00			0		1			16:00				56		40		
04:15			2		3			16:15			-5	52			· .	
04:30			0		5			16:30				48		38		
04:45			1	3	2	11	14	16:45				59	215	32	148	363
										·		79		41		
05:00			2		2			17:00								
05:15			3 - 4		9 13			17:15				51		33 32		
05:30				12		45	EO ·	17:30				44 40	214	32 25	131	345
05:45			4	13	21	45	58	17:45					214		121	242
06:00			8		31			18:00				46		19		
06:15			14		26			18:15				34		26		
06:30			17		47			18:30				35		30		
06:45			19	58	66	170	228	18:45				24	139	38	113	252
07:00			18		58			19:0 0				21		33		
07:15			24		58			19:15				23		25		
07:30			55		56		- ···	19:30				18		25		
07:45			64	161	59	231	392	19:45				14	76	31	114	190
08:00			40		59			20:00				7		15		
08:15			46		59			20:15				12		14		
08:30			34		74			20:30				10		16		
08:45			37	157	63	255	412	20:45				8	37	13	58	95
09:00			34		45			21:00				13		13		
09:15			34		46			21:15				7		11		
09:30			26		36			21:30				9		13		
09:45			29	123	47	174	297	21:45				7	36	3	40	76
	···,		30		50			22:00	•			8		4		
10:00 10:15		•	31		51			22:00				2		4		
10:15			40		40			22:15				2		7		
10:30			35	136	51	192	328	22:45				2	14	- 6	21	35
		···		100									± T			
11:00			. 46		47			23:00				2		2	•	
11:15			42		60			23:15				2		2		
11:30			47	100	57 ==	210	400	23:30				0	E.	0	7 -	12
11:45	 		55	190	55	219	409	23:45				11	5	_ 3		14
Totai Vol.				855		1314	2169						1455		1371	2826
												1	Daily To	tals		
										NB	SB		EB		WB	Combined
-									_				2310		2685	4995
				AM									PM			
Split %				39.4%		60.6%	43.4%						51.5%		48.5%	56.6%
		·														
				07:30		08:00	07:30						16:15		14:15	15:00
Peak Hour																
Peak Hour Volume				205		255	438						238 0.75		2 02 0.94	40 6 0.93

		ierra l		V/o Lai		Marcos Dr									
AM Period			SB		EB	WB		PM Period	NB		SB		EB WB		
00:00	0		1.					12:00	5		4				
00:15	2		1					12:15	4		4				
00:30	0		0					12:30	2		2				
00:45	0	2	0	2			4	12:45	2	13	1	11			24
01:00	1		0					13:00	1		3				
01:15	1		0					13:15	0		2				
01:30	1		2					13:30	8		5				
01:45	0	3	0	2			. 5	13:45	4	13		17			30
02:00	0		0					14:00	9	4.	6				
02:15	0		0.					14:15	2		11		•		
02:30	0		0					14:30	9		2				
02:45	0	. 0	0	0			·	14:45	8	28	5	24			52
03:00	0		0					15:00	7		11				
03:15	0		Ó			•		15:15	6		10				
03:30	0		1					15:30	12		6				
03:45	0	0	1	2			2	15:45	9	34		28			62
					 	·		16:00	6		4				
04:00	0		0.						6		2				
04:15	0		0					16:15			2 4				
04:30	0		1				2	16:30	6	72		13			35
04:45	1	1	0	11			2	16:45	4	22		13			
05:00	0		0					17:00	11		2				
05:15	1		1					17:15	4		3				
05:30	1		1				-	17:30	5		4 .				
05:45	0	2	1	3			5	17:45	6	26	2	11			37
06:00	0		2					18:00	11		1				
06:15								18:15	4		5				
	1		2					18:30	4		1				
06:30	0		6	45			16	18:45	. 8	27	1	8			35
06:45	0	1	_ 5	15	· · · ·		10	,							
07:00	2		3					19:00	3		2				
07:15	4		6			•		19:15	4		3				
07:30	1		6					19:30	3		3				
07:45	1	8	4	19			27	19:45	4	14	1	9			23
08:00	1		6					20:00	5		2	•			
08:15	1		6			3		20:15	6		2				
08:30			10					20:30	3		4				
	3	12		41			54	20:45	3	17		10			27
08:45	8	13	19									10			
09:00	9		5					21:00	4		1 .				
09:15	4		6					21:15	1		4				
09:30	6		9					21:30	3		2				
09:45	3	22	7	27			49	21:45	0	88	1	8.			16
10:00	5		9					22:00	3		. 0				
10:15	6		4					22:15	3		1				
10:30	2		2		•			22:30	0		0 .				
10:30	3	16	2	17		-	33	22:45	2	8	2	3			11
		10		1/						<u>~</u>		-			
11:00	4		1					23:00	1		0				
11:15	2		3					23:15	0		1 .				
11:30	4		2				_	23:30	1	-	1	_			6
11:45	1	11	4	10	···		21	23:45	1	3		3			
Total Vol.		79		139			218			213		145			358
TOTAL VOI.		15		133			- 110					- /-	Daily Tatala		
							*			NB		SB	Daily Totals EB	WB	Combined
										292		284			576
					Α	M							PM		
Split %		36.2%		63.8%			37.8%	- }		59.5%	4	0.5%			62.2%
							· · · · · · · · · · · · · · · · · · ·							- Indian	14:45
		08:45		08:00			08:45			15:00		14:45			14:40
Peak Hour		00.15													
Peak Hour Volume P.H.F.		27 0.75		41 0.54			66 0.61			34 0.77		32 0.73	•		. 65 0.90

AM/PM Peak Hour Turn Counts

N-S STREET: Rancho Santa Fe Rd

DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: SR-78 WB Ramps

DAY: TUESDAY

PROJECT# 04-4300-001

	N	ORTHBO	UND	. S	OUTHBO	UND	. [EASTBOU	ND	W	ESTBOL	IND	
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
6:00 AM							 -						
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	68	119			119	70				229	0	40 -	645
7:15 AM	63	128			128	88				253	0	56	716
7:30 AM	90	157			141	71				175	1	47	682
7:45 AM	118	185			150	83				183	0	55	774
8:00 AM	99	170			98	81				211	0	65	724
8:15 AM	116	179			87	54				221	0	72	729
8:30 AM 8:45 AM	110 104	161 167			99 1 <u>44</u>	60 79				187	0	48	665
9:00 AM	104	107			T' .1.1	79				156	0	43	693
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM												,	
10:15 AM													
10:30 AM						* *							
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	768	1266	0	0	966	586	0	0	0	1615	1	426	5628
·				•		•				•		,	•
AM Pea	ık Hr Be	gins at:	730	AM									
PEAK													•
VOLUMES =	423	691	0	lo	476	289	0	Ω	0	790	4	220	2909
4OLUNICO -	743	031	Ų	"	טוד	209	U	0	U	/30	1	239	2303
PEAK HR.		-				1							
FACTOR:		0.919			0.821			0.000			0.879		0.940
	L		•	<u>I</u> I		1					2.2.3	i	, 0,5,5
CONTROL:	Signaliz	red											

N-S.STREET: Rancho Santa Fe Rd

DATE: 9/21/2004

LOCATION: City of San Marcos

CONTROL:

Signalized

E-W STREET: SR-78 WB Ramps

DAY: TUESDAY

PROJECT#

	NO	ORTHBO	UND	S	OUTHBO	UND .	E	ASTBOL	IND	W	/ESTBOL	JND	
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	wr	WR	TOTAL
1:00 PM											·		
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM												•	
2:15 PM													
2:30 PM													
2:45 PM		:			-								
3:00 PM													
3:15 PM												•	
3:30 PM									•				
3:45 PM					. 70	400				424		30	CEO
4:00 PM	151	170			70.	108				121		30	650 667
4:15 PM	167	162			89	99				112 99		38 - 51	678
4:30 PM	170	168			101	_89 07				108		64	727
4:45 PM	181	180			97	97				119		60	714
5:00 PM	162	160			110	103				113		59	717
5:15 PM	154	171	,		121 109	94				110		60	781
5:30 PM	210	182	•		109 87	110 87				91		54	667
5:45 PM	190	158			07	07				91		77	007
6:00 PM 6:15 PM													
6:30 PM													
6:45 PM													
ויוז כדיט													
TOTAL	NL	NT	NR	SL	ST	SR	EL	ΕŢ	ER	WL	· WT	WR	TOTAL
VOLUMES =	1385	1351	0	0	784	787	0	0	0	873	0	416	5596
	1		i	1			ı			1			ı
DM Da	ak Hr Re	gins at:	445	PM									
רויו רכנ	שאל ווו של	.gii is at.	. 173	1 (1)									
PEAK													
VOLUMES =	707	,693	0	0	437	404	0	0	0	450	0	243	2934
	1									1			
PEAK HR.	1												
FACTOR:		0.893			0.960		1	0.000		.].	0.968		0.939

N-S STREET: Rancho Santa Fe Rd

DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: SR-78 EB Ramps DAY: TUESDAY

PROJECT#

04-4300-002

	NO	ORTHBO	UND	S	OUTHBO	UND	Ē	ASTBOL	IND	V	/ESTBOU	ND	
LANES:	NL	NT 2	NR 1	SL 1	ST 2	SR	EL 0.5	ET 0.5	ER 2	WL	WT	WR	TOTAL
6:00 AM 6:15 AM 6:30 AM 6:45 AM 7:00 AM 7:15 AM 7:45 AM 8:00 AM 8:15 AM 9:00 AM 9:15 AM 9:30 AM 9:45 AM 10:00 AM 10:15 AM 10:30 AM 10:45 AM 11:30 AM 11:45 AM		142 161 183 168 152 170 195 158	101 122 149 117 95 128 121 132	30 40 46 51 54 47 48 43	324 340 365 280 260 243 247 232	-	71 77 84 69 49 53 43 52		177 181 178 174 196 170 156 119				845 921 1005 859 806 811 810 736
TOTAL VOLUMES =	NL 0	NT 1329	NR 965	SL 359	ST 2291	SR 0	EL 498	ET 0	ER 1351	WL 0	WT 0	WR 0	TOTAL 6793
AM Pea	k Hr Be	gins at:	700	AM									
PEAK VOLUMES =	0	654	489	167	1309	0	301	0	710	0	0	0	3630
PEAK HR. FACTOR:		0.861			0.898			0.965			0.000		0.903

Signalized

CONTROL:

N-S STREET: Rancho Santa Fe Rd DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: SR-78 EB Ramps

DAY: TUESDAY

PROJECT#

	NO	ORTHBO	UND	SC	OUTHBO	JND	E	ASTBOU	ND	W	/ESTBOU	ND	
LANES:	NL	NT 2	NR 1	SL 1	ST 2	SR	EL 0.5	ET 0.5	ER 2	WL	WT	WR	TOTAL
1:00 PM 1:15 PM 1:30 PM 1:45 PM 2:00 PM 2:15 PM 2:30 PM 3:00 PM 3:15 PM 3:30 PM 3:45 PM 4:00 PM 4:15 PM 4:30 PM 4:30 PM 5:00 PM 5:15 PM 5:00 PM 5:15 PM 5:00 PM		241 257 267 278 252 269 252 235	152 160 169 175 158 168 161 144	46 48 56 62 48 54 50 43	152 163 160 175 189 172 163 148		75 81 87 91 97 109 102 89	0 0 1 0 0 1	110 117 124 141 130 117 98 101				776 826 864 922 874 890 826 760
6:00 PM 6:15 PM 6:30 PM 6:45 PM TOTAL VOLUMES =	NL 0	NT 2051	NR 1287	SL 407	ST 1322	SR 0	EL 731	ET 2	ER 938	WL 0	WT 0	WR 0	TOTAL 6738
PM Pea	k Hr Be	gins at:	430	ΡM									
PEAK VOLUMES =	0	1066	670	220	696	0	384	2	512	0	0	0	3550
PEAK HR. FACTOR:		0.958			0.966			0.968			0.000		0.963
CONTROL:	Signaliz	zed											

N-S STREET: Rancho Santa Fe Rd

DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: San Marcos Blvd

DAY: TUESDAY

PROJECT#

	١	NORTHB	OUND	9	OUTHBO	DUND		EASTBO	UND		WESTBO	UND	
LANES:	NL 2	NT 2	NR 1	SL 1	ST 2	SR 1	EL 2	ET 2	ER 1	WL 2	WT 3	WR 0	TOTA
6:00 AM 6:15 AM 6:30 AM 6:45 AM													
7:00 AM 7:15 AM 7:30 AM 7:45 AM 8:00 AM 8:15 AM 8:30 AM 8:45 AM 9:00 AM 9:15 AM	26 24 40 46 27 37 33 22	110 116 121 122 104 105 93 109	141 145 185 169 126 113 131 124	16 15 22 28 21 12 16 27	156 170 168 183 152 158 137 143	101 119 104 136 71 88 67 80	42 46 102 79 58 64 65 75	157 148 195 186 177 189 196 129	15 7 13 16 15 23 16 14	99 93 106 91 131 117 128 105	216 267 276 220 270 230 253 205	6 4 11 10 9 9 13 13	1085 1154 1343 1286 1161 1145 1148 1046
9:30 AM 9:45 AM 10:00 AM 10:15 AM 10:30 AM 10:45 AM 11:00 AM 11:15 AM 11:30 AM 11:45 AM				ı		%_	-			,			
OTAL OLUMES =	NL 255	NT 880	NR 1134	SL 157	ST 1267	SR 766	EL 531	ET 1377	ER 119	WL .870	WT 1937	WR 75	TOTAI 9368
AM Pea	ak Hr Be	egins at:	715	AM			•			i			I
AK DLUMES =	137	463	625	86	673	430	285	706	51	421	1033	34	4944
AK HR. CTOR:		0.885			0.857			0.840			0.907		0.920
NTROL:	signaliz	ed											

N-S STREET: Rancho Santa Fe Rd

DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: San Marcos Blvd

DAY: TUESDAY

PROJECT#

													
	N	ORTHBO	UND	S	OUTHBO	UND	E	EASTBOU	JND	. V	VESTBOL	IND	
LANES:	NL 2	NT 2	NR 1	SL 1	ST 2	SR 1	EL 2	ET 2	ER 1	WL 2	WT 3	WR 0	TOTAL
1:00 PM	***	- ; .											······
1:15 PM					•								
1:30 PM													
1:45 PM													
2:00 PM												-	
2:15 PM												- '	
2:30 PM													
2:45 PM								+ .					
3:00 PM					-								
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	38	220	35	- 38	147	150	188	197	15	110	321	8	1467
4:15 PM	31	218	31	32	139	131	162	147	18	166	306	19	1400
4:30 PM	34	301	36	40	148	164	175	157	24	97	340	17	1533
4:45 PM	20	244	44	16	119	1 <u>3</u> 8	193	187	14	153	381	19	1528
5:00 PM	37	253	50	47	150	144	189	184	13	160	274	15	1516
5:15 PM	33	271	32	38	121	155	178	175	23	88	365	14	1493
5:30 PM	34	246	39	22	131	149	155	175	12	′79	352	21	1415
5:45 PM	32	200	56,	27	94	156	183	137	22	114	327	19	1337
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	259	1953	293	260	1049	1187	1423	1359	141	967	2666	132	11689
					•					"	2000	202	11000
			•				•			•		•	•
DM Po-	ak Hr Da	egins at:	430	DM									
רוז רפנ	אל ווו אנ	zyma at.	400	1 1.1									
PEAK .													
VOLUMES =	124	1069	162	141	538	601	735	703	74	498	1360	65	6070
	1		-]			
PEAK HR.	[-							1
FACTOR:		0.913	ļ		0.909			0.959		l ·	0.869		0.990
	•		••			,	•		. '	•		•	
CONTROL:	signaliz	zed											

N-S STREET: Rancho Santa Fe Rd

DATE: 9/21/2004

LOCATION: City of San Marcos

CONTROL: Signalized

E-W STREET: Lake San Marcos Dr

DAY: TUESDAY

PROJECT# 04-4300-004

							,						
	N	ORTHBO	UND	S	OUTHBO	UND		ASTBOL	JND	٧	VESTBO	JND	
LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL 1	WT 0	WR 1	TOTAL
6:00 AM 6:15 AM 6:30 AM 6:45 AM 7:00 AM 7:15 AM 7:30 AM 8:00 AM 8:15 AM 9:00 AM 9:15 AM 9:30 AM 9:15 AM 10:00 AM 10:15 AM 10:00 AM 10:15 AM 10:45 AM		190 230 258 271 248 231 222 201	11 17 24 19 17 19 10 11	17 26 38 31 41 37 31 24	251 260 278 289 264 251 242 213					8 12 16 19 21 17 24 18		31 · 52 70 60 42 41 36 29	508 597 684 689 633 596 565 496
TOTAL VOLUMES =	NL O	NT 1851	NR 128	SL 245	ST 2048	SR 0	EL 0	ET 0	ER 0	WL 135	WT 0	WR 361	TOTAL 4768
AM Pea	k Hr Be	gins at:	715	AM									
PEAK VOLUMES =	0	1007	77	136	1091	0	0 -	0	0	68	. 0	224	2603
PEAK HR. FACTOR:		0.934			0.959			0.000			0.849		0.944

N-S STREET: Rancho Santa Fe Rd

DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: Lake San Marcos Dr

Signalized

CONTROL:

DAY: TUESDAY

PROJECT#

	, N	ORTHBO	UND .	SC	OUTHBO	DND	I	ASTBOU	ND	W	ESTBOU	ND	
LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 0	ER 0	WL .	WT 0	WR 1	TOTAL
1:00 PM				`	 -								
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM									-5.		-		
2:15 PM													
2:30 PM													
2:45 PM 3:00 PM													
3:15 PM											•		
3:30 PM													
3:45 PM													
4:00 PM		272	22	21	211					10		14	550
4:15 PM		311	29	29	231				•	. 9		17	626
4:30 PM		337	41	40	242					6		24	690
4:45 PM		346	37	32	251					18		19	703
5:00 PM		327	31	30	237					22		26	673
5:15 PM		294	27	34	248					25		14	642
5:30 PM		270	26	28	260					' 21		11	616
5:45 PM		258	19	20	231					14		7	549
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													
)TAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
DLUMES =	0	2415	232	234	1911	0	0	0	0 .	125	0	132	5049
	1						ı			í	•	1	l
PM Pea	ak Hr Be	egins at:	430	PM				•		•			
AK													
CLUMES =	1 0	1304	136	136	978	0	0	0	0	71	0	83	2708
	1					-	1	-	-				,
COMES -	i												
AK HR.		٦					1			İ			

N-S STREET: Rancho Santa Fe Rd

DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: Melrose Dr

DAY: TUESDAY

PROJECT# 04-4300-005

	NO	ORTHBO	DND	S	ОИТНВО	JND	. E	ASTBOU	ND	W	ESTBOU	ND	
LANES:	NL 1	NT 2	NR 0	SL 0	ST 1	SR 0	EL 1	ET 0	ER 1	WL 0	WT 0	WR 0	TOTAL
6:00 AM 6:15 AM 6:30 AM 6:45 AM 7:00 AM 7:15 AM 7:30 AM 8:00 AM 8:15 AM 9:00 AM 9:15 AM 9:30 AM 9:45 AM 10:00 AM 10:15 AM 10:30 AM 10:45 AM 11:30 AM 11:15 AM	110 107 111 101 106 112 105 106	181 175 189 174 205 237 230 217			211 201 262 272 199 193 227 246	-	60 58 67 55 70 81 60 44		98 103 101 99 110 101 78 89				660 644 730 701 690 724 700 702
TOTAL VOLUMES =	NL 858	NT 1608	NR 0	SL 0	ST 1811	SR 0	EL 495	ET 0	ER 779	WL 0	WT 0	WR 0	TOTAL 5551
AM Pea	ak Hr Be	gins at:	730 .	АМ									
PEAK VOLUMES =	430	805	0	0	926	0	273	0	411	0	0	0	2845
PEAK HR. FACTOR:		0.885			0.851			0.940		4	0.000		0.974

CONTROL: signalized

N-S STREET: Rancho Santa Fe Rd DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: Melrose Dr

DAY: TUESDAY

PROJECT# 04-4300-005

	N	ORTHBO	UND	S	OUTHBO	UND	E	ASTBOL	JND	W	/ESTBOL	JND	
LANES:	NL 1	NT 2	NR 0	SL 0	ST 1	SR 0	EL 1	ET 0	ER 1	WL 0	WT 0	WR 0	TOTAL
1:00 PM													
1:15 PM													
1:30 PM							•						
1:45 PM													
2:00 PM				,					et.			_	
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM					-								
3:15 PM													
3:30 PM 3:45 PM													
4:00 PM	69	259			201	42	75		97.	•			743
4:15 PM	60	258			201	51	75 75		100				746
4:30 PM	79	266			180	36	75 76		101				738
4:45 PM	62	245			166	38	78		107			÷	696
5:00 PM	79	253			207	- 54	69		111				773
5:15 PM	62	226			212	52	60		141				753
5:30 PM	61	249			210	51	73		129	•			773
5:45 PM	57	244	3		190	50	64		102				707
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	529	2000	0	0	1568	374	570	0	888	0	0	0	5929
PM Pea	l ik Hr Be	gins at:	500	PM									ł
55414													
PEAK VOLUMES =	259	972	0	0	819	207	266	0	483	. 0	0	,0	3006
PEAK HR. FACTOR:	-	0.927			0.972			0.927	-		0.000		0.972

CONTROL: signalized

N-S STREET: Las Posas Rd

DATE: 9/21/2004

LOCATION: City of San Marcos

CONTROL:

E-W STREET: San Marcos Blvd

DAY: TUESDAY

PROJECT#

							,						
	N	ORTHBC	UND	S	OUTHBO	UND		ASTBOU	ND	V	VESTBOL	JND	
LANES:	NL 1	NT 1	NR 1	SL 1	ST 2	SR 0	EL 1	ET . 2	ER 0	WL .1	WT 2	WR 1	TOTAL
6:00 AM 6:15 AM 6:30 AM 6:45 AM 7:00 AM 7:15 AM 7:30 AM 8:00 AM 8:15 AM 8:30 AM 9:00 AM 9:15 AM 9:30 AM 9:15 AM 10:00 AM 10:15 AM 10:30 AM 10:45 AM 11:30 AM 11:45 AM	8 4 11 14 9 10 11 8	4 6 5 8 10 12 10 7	10 9 12 15 11 12 11 7	11 18 22 15 8 11 12 9	4 7 6 8 10 14 9 7	90 104 119 97 90 106 94 84	39 51 60 62 71 57 34 31	227 258 294 301 284 270 251 238	14 14 16 17 11 15 14 10	10 14 12 17 22 15 10 11	270 259 268 284 261 257 247 234	15 · 21 19 28 34 26 19 21	702 765 844 866 821 805 722 667
VOLUMES =	NL 75	62	NR 87 730	106	ST 65	SR 784	EL 405	ET 2123	ER 111	WL 111	WT 2080	WR 183	TOTAL 6192
	ik iii be	gins at:	/30	AITI									
PEAK VOLUMES =	44	35	50	56	38	412	250	1149	59	66	1070	107	3336
PEAK HR. FACTOR:		0.872			0.861			0.959			0.945		0.963

N-S STREET: Las Posas Rd

DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: San Marcos Blvd

DAY: TUESDAY

PROJECT#

	N	ORTHBO	UND	S	ОИТНВО	UND		ASTBOU	ND	M	/ESTBOL	JND	
LANES:	NL 1	NT 1	NR 1	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	TOTAL
1:00 PM 1:15 PM 1:30 PM 1:45 PM 2:00 PM 2:15 PM 2:30 PM 2:45 PM 3:00 PM			· · · · · · · · · · · · · · · · · · ·		·						·	· · · · · · · · · · · · · · · · · · ·	
3:15 PM 3:30 PM 3:45 PM 4:00 PM 4:15 PM 4:30 PM 4:45 PM 5:00 PM 5:15 PM 5:30 PM 6:00 PM 6:15 PM 6:30 PM 6:30 PM	11 12 15 10 7 9 10 11	8 7 10 12 8 11 11 8	7 9 8 11 14 12 9 7	16 13 13 15 17 12 8 10	8 8 6 10 8 9 6 7	58 67 62 72 64 58 60 47	94 84 80 74 61 73 60 51	331 320 311 398 334 319 332 310	8 7 10 12 14 12 10 8	16 13 12 17 16 19 17 11	190 237 281 251 264 271 250 223	14 12 12 16 15 11 12 9	761 789 820 898 822 816 785 702
TOTAL VOLUMES =	NL 85	NT 75	NR 77	SL 104	ST 62	SR 488	577	ET 2655	ER 81	WL 121	WT 1967	WR 101	TOTAL 6393
PM Pea	k Hr Be	gins at:	430	PM									
PEAK VOLUMES = PEAK HR. FACTOR:	41	41	45	57	33 0.892	256	288	1362 0.877	48	64	1067 0.971	54	3356 0.934
CONTROL:		0,002	•	ı	3.33 <u>2</u>		•	3.377		1		,	,, ,

N-S STREET: SR-78 EB Ramps

DATE: 9/21/2004

LOCATION: City of San Marcos

CONTROL:

Signalized

E-W STREET: San Marcos Blvd

DAY: TUESDAY

PROJECT# 04-4300-007

				***********							·		<u> </u>
	N	ORTHBO	DND	S	OUTHBO	UND	. 8	ASTBOL	JND	V	VESTBOL	IND	
LANES:	NL	NT	NR	SL 2	ST	SR 1	EL	ET 3	ER 2	WL 2	WT 3	WR	TOTAL
6:00 AM 6:15 AM 6:30 AM 6:45 AM 7:00 AM 7:15 AM 7:30 AM 7:45 AM 8:00 AM 8:15 AM 9:00 AM 9:15 AM 9:30 AM				60 69 72 63 48 57 61 47		110 98 101 125 97 108 90 102		172 181 172 201 210 171 167 138	160 189 211 241 251 239 222 197	37 36 41 48 52 62 70 67	378 467 509 458 419 401 411 321	-	917 1040 1106 1136 1077 1038 1021 872
10:00 AM 10:15 AM 10:30 AM 10:45 AM 11:00 AM 11:15 AM 11:30 AM 11:45 AM				•						,			
TOTAL VOLUMES =	NL O	NT O	NR 0	SL 477	ST 0	SR 831	EL 0	ET 1412	ER 1710	WL 413	WT 3364	WR 0	TOTAL 8207
	ık Hr Be	egins at:	715	AM									
PEAK VOLUMES =	0	0	0	252	0	421	0	764	892	177	1853	0	4359
PEAK HR. FACTOR:		0.000			0.895			0.898			0.923		0.959

N-S STREET: SR-78 EB Ramps

DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: San Marcos Blvd

CONTROL:

Signalized

DAY: TUESDAY

PROJECT#

	· · · · · · · · · · · · · · · · · · ·												
	NO	ORTHBO	UND	. S	OUTHBO	UND	Е	ASTBOL	JND .	W	/ESTBOU	ND	
LANES:	NL	NT	NR	SL 2	ST	SR 1	EL	ET 3	ER 2	WL 2	WT 3	WR	TOTAL
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM										•			
2:00 PM									45				
2:15 PM												• .	
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM		,						* •					
4:00 PM				71		106		286	262	69	247		1041
4:15 PM				89		117		302	257	72	371		1208
4:30 PM				110		128		291	270	74	365		1238
4:45 PM				97		138		319	251	81	324		1210
5:00 PM				70		150		301	227	90	288		1126
5:15 PM				68		107		274	219	71	291		1030
5:30 PM				62		87		261	210	[,] 62	327		1009
5:45 PM			1	54		92		244	217	47	302		956
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													
TOTAL	NL	NT	NR	SL	ST	SR	EL	ΕT	ER	WL	WT	WR	TOTAL
VOLUMES =	0	0	0	621	0	925	0	2278	1913	566	2515	0	8818
										1			
	•			-						•			
DM D	- ۵ ما دا	aine st:	415	DM									
PM Pea	ik ni be	gins at:	415	ri*i									
PEAK					•			4040	1005	1 247	1240	0	1 4700
VOLUMES =	0	0	0	366	. 0	533	0	1213	1005	317	1348	0	4782
		-								1			
PEAK HR.	'	2 225			0.04:			0.070			0.040		0.000
FACTOR:		0.000		l	0.944	•	1	0.973		l	0.940		0.966

N-S STREET: SR-78 WB Ramps

DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: San Marcos Blvd

DAY: TUESDAY

PROJECT# 04-4300-008

	NC	RTHBO	UND	S	OUTHBO	UND	. 6	ASTBOU	ND	W	/ESTBOU	ND	
LANES:	NL 2	NT 2	NR 1	SL 1	ST	SR 2	EL 2	ET 3	ER 1	WL	WT 3	WR 1	TOTAL
6:00 AM 6:15 AM 6:30 AM 6:45 AM 7:00 AM 7:15 AM 7:30 AM 7:45 AM 8:00 AM 8:15 AM 9:00 AM 9:15 AM 9:30 AM 9:45 AM 10:00 AM 10:15 AM 10:30 AM 10:45 AM 11:30 AM	301 287 247 237 219 227 237 218	128 101 74 90 81 89 97 80	17 14 10 11 5 7 6 8	24 21 20 23 17 14 10 12		140 137 121 109 89 97 91 80	112 101 101 84 60 71 60 57	138 124 110 94 70 79 81 70	48 52 43 40 31 37 42 34		215 197 184 149 131 129 120 91	18 27 34 24 17 15 11	1141 1061 944 861 720 765 755 664
TOTAL VOLUMES =	NL 1973	NT 740	NR 78	SL 141	ST 0	SR 864	EL 646	ET 766	ER 327	WL 0	WT 1216	WR 160	TOTAL 6911
	ak Hr Beg	gins at:	700	AM									
PEAK VOLUMES =	1072	393	52	88	0	507	398	466	183	0	745	103	4007
PEAK HR. FACTOR:		0.850			0.907			0.878			0.910		0.878

Signalized

CONTROL:

THE SECTION LANDING LACKETTE

Prepared by: Southland Car Counters.

N-S STREET: SR-78 WB Ramps

DATE: 9/21/2004

LOCATION: City of San Marcos

CONTROL:

Signalized

E-W STREET: San Marcos Blvd

DAY: TUESDAY

PROJECT#

LANES:	NC	RTHBO	UND	SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL 2	NT 2	NR 1	SL 1	ST	SR 2	EL 2	ET 3	ER 1	WL	WT 3	WR 1	TOTAL
1:00 PM		······································			· · · · · · · · · · · · · · · · · · ·								
1:15 PM											•		
1:30 PM													
1:45 PM	·												
2:00 PM			•									•	
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM 3:45 PM													
4:00 PM	217	60	17	40		121	94	204	41		160	14	968
4:00 PM	217	67	19	37		122	101	237	47		154	13	1007
4:30 PM	201	68	23	41		119	104	252	52		169	18	1047
4:45 PM	197	79	16	46		<u>1</u> 17	121	260	62		181	22	1101
5:00 PM	187	70	10	37		142	101	251	51		174	19	1042
5:15 PM	212	71	16	41		119	92	241	57		162	14	1025
5:30 PM	207	68	12	40	_	99	87	236	42	,	154	10	955
5:45 PM	187	54	10	30		70	74	201	34		132	11	803
6:00 PM	107	٥,	10			, •			-				
6:15 PM													
6:30 PM													
6:45 PM													
OTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
OLUMES =	1618	537	123	312	0	909	774	1882	386	0	1286	121	7948
							1		•	ļ			
PM Pea	ak Hr Be	gins at:	430	PM									
EAK													
OLUMES =	797	288	65	165	0	497	418	1004	222	0	686	73	4215
EAK HR.		5											
ACTOR:		0.962			0.925			0.928			0.935		0.957
		しょづけ ノ											

Intersection Turning Movement Prepared by: Southland Car Counters

N-S STREET: La Tierra Dr

CONTROL: 1-Way Stop S

DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: Lake San Marcos Dr

DAY: TUESDAY

PROJECT# 04-4300-009

	NC	ORTHBOU	JND	S	ОИТНВО	DND	E	ASTBOU	DV	W	/ESTBOU	ND	
LANES:	NL	NT	NR	SL 0	ST	SR 1	EL 0	ET 2	ER	WL 0	WT 2	WR 0	TOTAL
6:00 AM 6:15 AM 6:30 AM 6:45 AM 7:00 AM 7:15 AM 7:30 AM 8:00 AM 8:15 AM 8:30 AM 8:45 AM 9:00 AM 9:15 AM 9:30 AM 10:00 AM 10:15 AM 10:30 AM 10:15 AM				0 0 0 0 1 0 0		7 3 7 2 8 11 18 3	1 0 1 0 7 7 6	25 20 36 51 49 58 49 44			37 23 39 59 64 54 64 45	•	70 46 83 112 121 131 138 98
11:45 AM			,			- CD	1	·		1 14/1)A/T	WR	TOTAL
TOTAL VOLUMES =	NL 0	NT O	NR 0	SL 1	ST 0	SR 59	EL 22	ET 332	ER 0	WL 0	WT 385	0	799
AM Pea	k Hr Be	gins at:	745	AM									
PEAK VOLUMES =	0	0	0	1	0	39	14	207	0	0	241	0	502
PEAK HR. FACTOR:		0.000			0.556			0.850			0.941		0.909

Intersection running movement

Prepared by: Southland Car Counters

N-S STREET: La Tierra Dr

DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: Lake San Marcos Dr

DAY: TUESDAY

PROJECT# 04-4300-009

	NC	ORTHBOL	JND	SC	OUTHBOU	JND	E	ASTBOUN	ND	W	ESTBOU	ND	
LANES:	NL	NT	NR	SL 0	ST	SR 1	EL 0	ET 2	ER	WL 0	WT 2	WR 0	TOTAL
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM					•				*			. .	
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM				0		2	_	C 4		0	44	ר	116
4:00 PM				0		3	6	64 40		0	41 29	2 0	86
4:15 PM				1		0 5	7 11	49 61		0	40	0	117
4:30 PM				0			4	79		1	30	0	115
4:45 PM				0 0		_1 4	2	41		0	26	0	73
5:00 PM 5:15 PM				0	414 14	0	8	31		1	34	0	74
5:13 PM 5:30 PM				0		2	5	45		, <u>1</u>	29	1	83
5:45 PM			¥	0		4	6	35		0	15	Õ	60
6:00 PM				U		7	O	23		J	13	Ü	•
6:15 PM												·	
6:30 PM													
6:45 PM									•				
								· · · · · · · · · · · · · · · · · · ·					
OTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL 3	WT 244	WR 3	TOTA 724
DLUMES =	0	. 0	0	1	0	19	49	405	0	,	277	J	/21
	1						1			•			•
			400	D1.4									
PM Pea	ak Hr Be	egins at:	400	PM									
ÄK	_			1								-	
)LUMES =	0	0	0	1	0	9	28	253	0	1	140	2	434
	1	•											
AK HR.	1							0.046			0.034		0.00-
CTOR:	l	0.000			0.500		l	0.846		ı	0.831		0.927
MTDOL	1-1//2/	Stop S											
NTROL:	T-AAGA	aroh a											

Intersection Turning Movement Prepared by: Southland Car Counters

N-S STREET: San Marino Dr

DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: Lake San Marcos Dr

DAY: TUESDAY

PROJECT# 04-4300-010

	N	ORTHBO	UND	S	ОИТНВО	UND	E	ASTBOU	ND	N	/ESTBOU	ND	
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 0	ER 1	WL 0	WT 0	WR 0	TOTAL
6:00 AM 6:15 AM 6:30 AM 6:45 AM 7:00 AM 7:15 AM 7:30 AM 8:00 AM 8:15 AM 9:00 AM 9:15 AM 9:30 AM 9:15 AM 10:00 AM 10:15 AM 10:30 AM 10:45 AM 11:45 AM	7 8 9 8 9 9 11 10	8 5 11 17 12 8 9 15			34 28 32 22 25 12 22 11	30 24 24 36 48 37 61 45	14 18 34 49 37 40 31 23		7 8 6 10 11 14 15 17				100 91 116 142 142 120 149 121
TOTAL VOLUMES =	NL 71	NT 85	NR 0	SL 0	ST 186	SR 305	EL 246	ET 0	ER 88	WL 0	WT 0	WR 0	TOTAL 981
AM Pea	k Hr Be	gins at:	745	AM									
PEAK VOLUMES =	37	46	0	0	81	182	157	0	50	0	0 .	0	553
PEAK HR. FACTOR:		0.830	į		0.792			0.877			0.000		0.928

CONTROL:

1-Way Stop EB

Prepared by: Southland Car Counters

N-S STREET: San Marino Dr

DATE: 9/21/2004

LOCATION: City of San Marcos

E-W STREET: Lake San Marcos Dr

DAY: TUESDAY

PROJECT#

04-4300-010

	NC	ORTHBOU	JND	SC	OUTHBO	JND	E	ASTBOU	ND .	W	ESTBOU	ND	
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 0	ER 1	WL 0	WT 0	WR 0	TOTAL
1:00 PM 1:15 PM 1:30 PM 1:45 PM 2:00 PM 2:15 PM 2:30 PM 2:45 PM 3:00 PM 3:15 PM 3:30 PM 3:45 PM 4:00 PM 4:15 PM	14 8	21 9			14 17	29 22	48 49		14 8			· .	140 113
4:30 PM 4:45 PM 5:00 PM 5:15 PM 5:30 PM 5:45 PM 6:00 PM 6:15 PM 6:30 PM 6:45 PM	17 7 17 10 9 8	11 21 17 11 9			13 15 11 12 9 8	24 26 22 19 22 16	52 34 39 31 30 29		12 15 13 11 15 12				129 118 119 94 94 90
TOTAL VOLUMES = PM Pea	NL 90 k Hr Be	NT 116 gins at:	NR 0 400	SL 0	ST 99	SR 180	EL 312	ET 0	ER 100	WL 0	WT 0	WR 0	TOTAL 897
PEAK VOLUMES =	46	62	0	0	59	101	183	0	49		0	0	500
PEAK HR. FACTOR:	т о	0.771	5		0.930	101	100	0.906			0.000		0.893
CONTROL:	1-Way	Stop EB											

Summary of County of San Diego Public Road Standards

SUMMARY OF COUNTY OF SAN DIEGO PUBLIC ROAD STANDARDS!

	PHENT OUT 134E.	311111				-		1	1	_					_
	<u> </u>	PARIETAN		:	231	Title (UCD			PATIKVANY	_	-		100	1	
	<u> </u>		SHOUNDER II	NAMELE II VIAL	1-	אני ועון	1UY'ELED WAY	STOPPED			_1	LEVEL OF SERVICE (LOS)		CE (1:0)	<u> </u>
	J					_ 	-			լ. Խուր	· <		ပ	а	ш
	Modian	[involed	d Shoulder	Parkway dar ship		Roadbed	ı	Min.curve	Max. gibdos	dosign speads (niph)	Free	Standy	Stable	Approach	Unstable
EXPITESSWAY Divitoral Holloway with only soloc- test public doad necess with full grado surparations	34.		1		10.	126.	146'	1203,	6%	55	<38,000	<64,000	<70.000	< 06,000	< i09,000
PHIME ANTERIAL. DIAGOG Highway, signalized inter- sections, access cryifol, or extra lanos as required	ž	36,	0	_	.01	.201	122'	1200.	%9	55	<22,200	<37,000	<44,600	<50,000	<57,000
1 Inne dividud toad, access 4 parking controlled as necessary	ż	24.	8	_	.01	.97	.86	1200,	*	55	<14,800	<24,700	<29,600	<33,400	<37,900
COLLECTOR 4 ham undividual toad		.77		. <u>.</u>	.01		87.	.001	7.7	1918	÷13,700	<22,800	<27,400	<30,000	<34,200
1 IGHT COLLECTON 2 Iana undividad road		. 18.			10.	40.	,09	7007	% 6	45	<1,900	<4,100	<7,100	<10,900	<16,200
MITTAL COLLECTOR 2 Isna untilvidud road, extra R.W. allows groater flexibility 8 inxuranta		12.		iso	22.	40.	. 184	200,	12%	40	<1,900	<4,100	67,100	<10,900	<16,200
PHITAL HOUR COLLECTOR	!	1.5.	à.	.	<u>.</u>	40.	.09	500°	12%	40	<1,900	<4,100	د7,100	<10,900	<16,200
HUIVAL EXCHINIANT 2 Jana unifeddid toad appropriate only in teral months at as a	9		2.	.0	30.	40,	.001	200,	12%	40	<1,900	<4,100	۰۷,100	< 10.900	<16,200
HECRIEALIOHAL PARKWAY INCRAND INCRANDATION OF HAVE		-	.21	. <u></u>	30.	40,	160'	400.	12%	25 .	<1,900	<4,100	×1,100	×10,900	<16,200
	-						= -	HOH CINCULATION HOALIS	MAIIOH	SOVOU					
				ic	,,,,	40,	60	3000	12%	30	< 4,500	-	civica nie noi 195 10 se la 16 seive 186	alted to not current utting fals, red curr	disciplination of the least
NESIDETITIAL COLLECTOR	-		21			36.	56	500.	15%		<1,500		of or young filtranic	of service rounnily apply to loads Entyting Hungh Ballic Letteren major	h bullic Leinecon mu on 1934 classificallo
INESIDERTIAL STREET	-		2	9	= 3	15	1.63	200	15.4	! 2:	500		<200) at down		

A - 33

· City of San Marcos Level of Service Standards

Table 3.5-1 CITY OF SAN MARCOS STANDARD STREET CLASSIFICATION AVERAGE DAILY VEHICLE TRIPS

R	oad			Lev	el of Servi	ce	
	(V/C)		(0.60)	(0.70)	(0.80)	(0.90)	(1.00)
Class	X-Section	on	. A	В	С	D	E
Prime Arterial	106/126	*NP	36,000	42,000	48,000	54,000	60,000
Major Arterial	82/102	*NP	24,000	28,000	32,000	36,000	40,000
Secondary Arterial	64/84	*NP	18,000	21,000	24,000	27,000	30 <u>,</u> 000
Collector	40/60	*NP	9,000	10,500	12,000	13,500	15,000
Industrial	64/84		12,000	14,000	16,000	18,000	20,000
	46/66		6,000	7,000	8,000	9,000	10,000
Residential	48/68	**WP	2,500	5,000	8,000	8,500	10,000
Collector							
Residential Street	40/60		***	***	500	***	***
Interim Road	28/40 or 60		***	***	2,800	***	***

No Parking

With Parking

Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

City of San Marcos Urban Street Design Criteria

CANAL STREET, AND CONTRACTOR OF THE STREET, ST

CHY OF SAM MARCOS URBAM STREET DESIGN CRITERIA

4. nie Goondery Collideror Industrial Resiliential Collede Sac Mley	Anafial Anterial Auterial Stront Strongs Profile Street	200° 150° 150° 1100° 100° 50° or 100° 50° so	100. 100. 50' 50' 50' 25'	7% 7% 12% 12% 12% 12% 12% 12% 12% 12% 16% 15%	0.5% 0.5% 0.5% 0.5% 0.5% 0.5%	135W 135W 135W 135W	35° 35° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10	525' 10 400' to 475' 275' 10 200' 200' 150' 150' 125' 125' 125' 125' 125' 125' 125' 125	None None Hone None (13) (13) (14) , (14) OK OK OK OK OK OK (15) (15)	300. 300. 200. 100. 100. 100. 50	250' 250' 175' 50' 75'	None None Hone None Hone OK OK None None One side Only OK None Only
Control of the contro	Dosign Crileria	Minhnum "Recovery" Tangon	Minimum Intersection	Maximum Grade *(9)	Stainman Gearle	Lighting '(10) Intersecto. Non-Intersection	Curb Return Radius	Stopping Stght Distance	Driveway Access '(12)	Driveway/Intersection	Oriveway to Driveway Sociation	On-Street Parking

RPCC = Reinforced Portland Cement Concrete

-See Corresponding General Motes

84304 4123/9B

Engiterang EusentillifferstRT. Hu

Excerpts from the County of San Diego's Public Facilities Element

Part XII Public Facility Element

San Diego County General Plan

Adopted March 13, 1991 GPA 90-FE Amended June 10, 1992 GPA92-FE1

section	1 - Introduction	XII-1-1
Section	2 - Coordination Among Facility	
	Planning, Financing Programs and	đ
	Land Use Planning	XII-2-1
Section	3 - Parks and Recreation	XII-3-1
Section	4 - Transportation	XII-4-1
Section	5 - Flood Control	XII-5-1
Section	ó - Solid Waste	XII-6-1
Section	7 - Law Enforcement	XII-7-1
Section	8 - Animal Control	XII-8-1
Section	9 - Libraries	XII-9-1
Section 1	0 - Schools	XII-10-1
Section 1	1 - Fire Protection and	
2.4	Emergency Services	XII-11-1
Section 1	2 - Wastewater	XII-12-1
Section 1	3 - Water Provision Systems	XII-13-1
Section 1	4 - Child Care	XII-14-1
Section 1.	5 - Courts and Jails	XII-15-1
Section 1	ó - Social Services	XII-16-1
section 1	/ - Health	XII-17-1
Section 18	3 - Senior Services	XII-18-1
Section 19	9 - County Administration	XII-19-1
Section 20	D - Facilities Located in City Soneres	XII-20-1

This Element was partially funded through the Community Development Block Grant program

1. Increases in the amount of automobile use have resulted in increased congestion on the region's roadways.

Discussion: The dramatic rise in automobile use has far surpassed the ability of the County and other jurisdictions to upgrade and maintain the highway and road system. As the number of vehicles on the roadways has increased, the expansion of existing roadways and the construction of new roadways has not kept pace. Between 1978 and 1988, automobile registrations increased by 64% while increases in local street and road mileage only rose by 16%. As a result, certain roadways are functioning at a Level of Service "E" or "F" on a routine basis.

A LOS "C", which allows for stable traffic flow with room to maneuver, is a generally accepted level to strive for in new development. At this level, traffic generally flows smoothly, although freedom to maneuver within the roadway is somewhat restricted and lane changes require additional care.

However, there are some cases where development cannot achieve_a LOS "C" on off-site roadways. For instance, there are areas where the existing development pattern precludes the addition of lanes or other mitigation or when the community is opposed to certain improvements to maintain a LOS "C". Additionally, there are existing roadways in the County that are currently operating below a LOS "C". Such cases are currently exceptions and generally occur when there is insufficient right-of-way to expand or modify a roadway or when the existing development in the area has generated more traffic than anticipated. In these cases a Level of Service "D" is acceptable on off-site roadways. At this level, small increases in flow cause substantial deterioration in service. Freedom to maneuver is limited and minor incidents can cause substantial interruption in the traffic flow.

When the roadway system reaches a LOS "E" or "F", or new development would push it to LOS "E" or "F", new development should not be approved unless the project can mitigate the LOS "E" or contribute a fair share to a program to mitigate the project's impacts, unless a statement of overriding findings can be made.

In order to control the amount of traffic on the roadways, and subsequently the amount of congestion, it is necessary to apply the LOS measurement to all roads that are impacted by a proposed project. The effect of a project on the road system varies from project to project. Due to the size and type of project, the type and capacity of roads serving the project, the amount of traffic generated by the development and the existing development pattern, the impact will vary from one project to another. To apply a LOS standard to only major or larger capacity roads or to within a specified geographic distance of a project could result in an inadequate review of the impacts of a project and create the potential for increased congestion. Therefore, project impacts should be assessed on a case-by-case basis.

GUAL

A SAFE, CONVENIENT, AND ECONOMICAL INTEGRATED TRANSPORTATION SYSTEM INCLUDING A WIDE RANGE OF TRANSPORTATION MODES.

OBJECTIVE 1:

A Level of Service "C" or better on County Circulation Element roads.

Policy 1.1: New development shall provide needed roadway expansion and improvements on-site to meet the demand created by the development, and to maintain a Level of Service "C" on Circulation Element Roads during peak traffic hours. New development shall provide off-site improvements designed to contribute to the overall achievement of a Level of Service "D" on Circulation Element Roads.

Implementation Measure 1.1.1: Review all development proposals to determine both their short-term and long-term impacts on the roadway system. The area of impact will be determined based on the size, type and location of the project; the traffic generated by the project; and the existing circulation and development pattern in the area. [DPW, DPLU]

Implementation Measure 1.1.2: Require, as a condition of approval of discretionary projects, improvements or other measures necessary to mitigate traffic impacts to avoid reduction in the existing Level of Service below "C" on on-site Circulation Element roads. [DPLU, DPW]

Implementation Measure 1.1.3: Require, as a condition of approval of discretionary projects which have a significant impact on roadways, improvements or other measures necessary to mitigate below "D" on off-site and on-site abutting Circulation Element roads. New development that would significantly impact congestion on roads at LOS "E" or "F", either currently or as a result of the project, will be denied unless improvements are scheduled to increase the LOS to "D" or better or appropriate mitigation is provided. Appropriate mitigation would include a fair share contribution in the form of road improvements or a fair share contribution to an established program or project. If impacts cannot be mitigated, the project will be denied unless a specific statement of overriding findings is made pursuant to Section 15091(b) and 15093 of the State CEQA Guidelines. [DPLU, DPW]

Implementation Measure 1.1.4: Whenever possible on development proposals, require that access to parcels adjacent to roads shown on the Circulation Element be limited to side streets in order to maintain through traffic flow. [DPW, DPLU]

XII-4-18

Excerpts from the SANTEC/ITE Guidelines

SANTEC / ITE GUIDELINES FOR TRAFFIC IMPACT STUDIES [TIS] IN THE SAN DIEGO REGION

MARCH 2, 2000 FINAL DRAFT

PREFACE

These guidelines are subject to continual update, as future technology and documentation become available. Always check with local jurisdictions for their preferred or applicable procedures.

Committee Compilation by Kent A. Whitson

Reviewed by committee members: Hank Morris (co-chair), Tom Parry (co-chair), Arnold Torma (co-chair), Susan O'Rourke, Bill Darnell, Labib Qasem, John Boarman, Ralph Leyva, and Erik Ruehr

> Additional review by: Ann French Gonsalves, Bill Figge, Bob Goralka, and Gary Halbert

10. <u>Channelization and Intersection Geometry</u> - Caltrans' Traffic Manual and Guidelines for Reconstruction of Intersections, City of San Diego's Traffic Impact Study Manual -Appendix 4

Note: Neither local jurisdictions nor Caltrans officially advocate the use of any special software packages, especially since new ones are being developed all the time. However, consistency with the Highway Capacity Manual (HCM) is advocated in most cases. The above-mentioned software packages have been utilized locally. Because it is so important to have consistent end results, always consult with all affected jurisdictions, including Caltrans, regarding the analytical techniques and software being considered (especially if they differ from above) for the TIS.

IX. SIGNIFICANCE OF TRAFFIC IMPACTS TO CONSIDER MITIGATION

The following Table 1 indicates when a project's impact is significant – and mitigation measures are to be identified. That is, if a project's traffic impact causes the values in this table to be exceeded, it is determined to be a significant project impact. (Mitigation for all identified significant impacts should be provided for any project requiring CEQA analysis.)

Note: It is the responsibility of Caltrans, on Caltrans initiated projects, to mitigate the effect of ramp metering, for initial as well as future operational impacts, on local streets that intersect and feed entrance ramps to the freeway. Developers and/or local agencies, however, should be required to mitigate any impact to existing ramp meter facilities, future ramp meter installations, or local streets, when those impacts are attributable to new development and/or local agency roadway improvement projects.

Not all mitigation measures can feasibly be "hard" (new lanes or new capacity) improvements. A sample mitigation measure might include financing toward a regional ITS [Intelligent Transportation System] project, such as improved or "dynamic" ramp metering with real-time delay information available to motorists. The information can be accessed on either home or in-vehicle computers, or even by telephone (each ramp could have its own phone number with delay information) so the motorist can make a driving decision long before she or he arrives at a congested on-ramp. This sample mitigation would allow a project applicant (especially with a relatively small project) to meet mitigation by paying into a regional ramp meter fee, providing the fee can be established in the near future.

Other mitigation measures may include Transportation Demand Management recommendations — transit facilities, bike facilities, walkability, telecommuting, traffic rideshare programs, flex-time, carpool incentives, parking cash-out, etc. Additional mitigation measures may become acceptable as future technologies and policies evolve.

Table 1 MEASURE OF SIGNIFICANT PROJECT TRAFFIC IMPACTS

		Alloy	vable Ch	ange due to Proj	ect Impact**	
Level of Service with				vay Segments	Intersections	Ramp*** Metering
Project*		reeways		Speed (mph)	Delay (sec.)	Delay(min.)
ļ	V/C	Speed (mph)	V/C	Opeda (IIIpi)	2	2
D, E, & F (or	0.01	1	0.02	1	2	_
ramp meter delays above 15 min.)						

NOTES:

- All level of service measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis (using Table 2 or a similar LOS chart for each jurisdiction). The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped or not densely developed locations per jurisdiction definitions). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.
- If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. These impact changes may be measured from appropriate computer programs or expanded manual spreadsheets. The project applicant shall then identify feasible mitigation (within the Traffic Impact Study [TIS] report) that will maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see above * note), or if the project adds a significant amount of peak-hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating significant impact changes.
- See Attachment B for ramp metering analysis.

 Volume to Capacity ratio V/C KEY:

Speed = Speed measured in miles per hour

Delay = Average stopped delay per vehicle measured in seconds for

intersections, or minutes for ramp meters

Level of Service LOS

Excerpts from the County's Guidelines for Determining Significance

COUNTY OF SAN DIEGO

GUIDELINES FOR DETERMINING SIGNIFICANCE AND REPORT FORMAT AND CONTENT REQUIREMENTS

TRANSPORTATION AND TRAFFIC



LAND USE AND ENVIRONMENT GROUP

Department of Planning and Land Use Department of Public Works

September 26, 2006

County of San Diego Off-Street Parking Design Manual

[http://www.co.san-diego.ca.us/cnty/cntydepts/landuse/planning/zoning/ospdman.pdf]

The County of San Diego Off-Street Parking Design Manual implements Section 6793(c) of the County Zoning Ordinance. This section of the Ordinance relates to the design, dimensions, construction, landscaping, and surfacing of parking and bicycle spaces, and driveways.

2.3 Regional and Local Traffic Impact Analysis Guidelines

San Diego Traffic Engineers' Council (SANTEC) and the Institute of Traffic Engineers (ITE)

The San Diego Traffic Engineers' Council (SANTEC) and the local chapter of the Institute of Traffic Engineers (ITE) have endorsed for use the "Guidelines of Traffic Impact Studies (TIS) in the San Diego Region." These guidelines were prepared by a traffic subcommittee formed by SANDAG. The purpose of the subcommittee was to develop a model set of guidelines for the analysis of traffic impacts for adoption and use by the various jurisdictions in the San Diego region. The goal was to foster more consistency in the assessment of traffic impacts in the San Diego region. guidelines establish a LOS target of LOS D. Impacts would be identified for those projects that significantly increase the volume and or delay at intersections and road segments operating below LOS D (i.e. at LOS E of LOS F) either prior to or as a result of the proposed project. These guidelines have been incorporated into an appendix of the Regional Congestion Management Program (CMP) that is formally adopted by SANDAG for use by local jurisdictions. These guidelines are often used as a guideline by many local traffic-engineering consultants in the preparation of traffic impact studies in the San Diego Region. These guidelines, however, do not provide specific direction regarding the assessment of cumulative traffic impacts, unsignalized intersections or consistency with recent changes in the CEQA guidelines that removed consideration of de minimus findings/effects.

California Department of Transportation (Caltrans)

The California Department of Transportation (Caltrans) has prepared a "Guide for the Preparation of Traffic Impact Studies." Objectives for the preparation of this guide include providing consistency and uniformity in the identification of traffic impacts generated by local land use proposals. In terms of level of service, Caltrans endeavors to maintain a goal of LOS C on State highway facilities. However, Caltrans acknowledges that this may not always be feasible. In these circumstances, Caltrans often accepts lower LOS on facilities that are currently operating below the LOS C objective.

City of San Diego

The City of San Diego has prepared a "Traffic Impact Study Manual." The purpose is to provide guidelines to consultants on how to prepare traffic impact studies in the City of San Diego and to ensure consistency on the preparation of these studies. Impacts are identified if the proposed project will increase the traffic volume on a road segment above an identified allowable increase. The better the initial level of service on the road segment, the higher the allowable volume increase.

3.0 TYPICAL ADVERSE EFFECTS

3.1 Traffic Congestion

Typical traffic related impacts are most often associated with traffic congestion on local roads and the regional circulation network. As the San Diego region grows, the number of vehicle trips that are generated by residents also grows. Historically, vehicle trips have been increasing at a faster rate than that of the population growth. It is forecasted that more than 16 million vehicle trips would be made in this region each weekday by the year 2030. The automobile is expected to remain the primary method of travel in the region, but new and widened freeways, increased trolley and bus service, better rail service, and additional highway improvements would alleviate some of the traffic congestion. SANDAG's 2030 RTP details some of the regional improvements that are projected to occur within a twenty-year time frame, but even with these improvements individual projects will continue to contribute to traffic congestion.

Traffic congestion usually affects level of service on roadway segments and at intersections and ramps, which in turn results in decreases in traffic flow on roadways and longer queues at intersections and ramps. These delays ad time to drivers daily commutes and can be noticeable impacts of traffic congestion.

3.2 Connectivity

The County's road network is connected by a variety of roadways, which allow drivers to travel throughout the County. However, at times there are physical limitations, such as steep topography, which partially constrain connectivity on existing roadways and preclude the construction on new roadway connections. In order to address connectivity issues alternative road networks to access potential connections may be required.

3.3 Hazards Due to an Existing Transportation Design Feature

Increased traffic generated or redistributed by a proposed project may cause a significant traffic operational impact to an existing transportation design feature and result in potential hazards. These hazards can occur due to a design features or physical configuration of existing or proposed access roads and can adversely affect the safe transport of vehicles along a roadway. The physical conditions of the project site and surrounding area, such as curves, slopes, walls, landscaping or other barriers, may also result in vehicle conflicts with other vehicles or stationary objects.

3.4 Hazards to Pedestrians or Bicyclists

Increased traffic generated or redistributed by a proposed project may cause a significant traffic operational impact to pedestrians or bicyclists and result in potential hazards. These hazards can occur for a variety reasons including:

- A design feature or physical configurations on a road segment or at an intersection that may adversely affect the visibility of pedestrians or bicyclists to drivers entering and exiting the site, and the visibility of cars to pedestrians and bicyclists;
- High amount of pedestrian activity at the project access points.
- Precluding or substantially hindering of the provision of a planned bike lane or pedestrian facility on a roadway adjacent to the project site.
- The physical conditions of the project site and surrounding area, such as curves, slopes, walls, landscaping or other barriers may result, in vehicle/pedestrian, vehicle/bicycle conflicts.
- The project may result in a substantial increase in pedestrian or bicycle activity without the presence of adequate facilities.

3.5 Parking Capacity

Typical adverse effects on parking occur when an adequate number of spaces are not incorporated in a project design. The regulations are intended to require adequate off-street parking and loading, thereby reducing traffic congestion, allowing more efficient utilization of on-street parking, promoting more efficient loading operations, and reducing the use of public streets for loading purposes. Additionally, the regulations are intended to minimize the secondary effects of vehicles. These may include vehicular noise or visual impacts from headlights and unscreened parked vehicles. Unscreened parked vehicles are a particular concern when parking adjoins or is adjacent to residential areas or preserve systems that are sensitive to noise and lighting.

4.0 GUIDELINES FOR DETERMINING IMPACT SIGNIFICANCE

This section provides guidance for evaluating adverse environmental effects a project may have on traffic. The guidelines for determining significance are organized into eight categories: road segments, intersections, ramps, congestion management plan, hazards due to an existing transportation design feature, hazards to pedestrians or bicyclists, parking capacity, and alternative transportation. A discussion of how to evaluate project and cumulative level impacts is also included in the Transportation and Traffic Report Format and Content Requirement.

4.1 Road Segments

Pursuant to the County's General Plan Public Facilities Element (PFE), new development must provide improvements or other measures to mitigate traffic impacts to avoid:

- (a) Reduction in Level of Service (LOS) below "C" for on-site Circulation Element roads;
- (b) Reduction in LOS below "D" for off-site and on-site abutting Circulation Element roads; and
- (c) "Significantly impacting congestion" on roads that operate at LOS "E" or "F". If impacts cannot be mitigated, the project will be denied unless a statement of overriding findings is made pursuant to the State CEQA Guidelines. The PFE, however, does not include specific guidelines/thresholds for determining the amount of additional traffic that would "significantly impact congestion" on such roads, as that phrase is used in item (c) above.

The County has created the following guidelines to evaluate likely traffic impacts of a proposed project for road segments and intersections serving that project site, for purposes of determining whether the development would "significantly impact congestion" on the referenced LOS E and F roads. The guidelines are summarized in Table 1. The thresholds in Table 1 are based upon average operating conditions on County roadways. It should be noted that these thresholds only establish general guidelines, and that the specific project location must be taken into account in conducting an analysis of traffic impact from new development.

On-site Circulation Element Roads

PFE, Transportation, Policy 1.1 states that "new development shall provide needed roadway expansion and improvements on-site to meet demand created by the development, and to maintain a Level of Service C on Circulation Element Roads during peak traffic hours". Pursuant to this policy, a significant traffic impact would result if:

 The additional or redistributed ADT generated by the proposed land development project will cause on-site Circulation Element Roads to operate below LOS C during peak traffic hours except within the Otay Ranch project as defined in the Otay Subregional Plan Text, Volume 2. PFE, Implementation Measure 1.1.2.

Off-site Circulation Element Roads

PFE, Transportation, Policy 1.1 also states that "new development shall provide needed roadway expansion and improvements off-site to meet demand created

by the development, and to maintain a Level of Service D on Circulation Element Roads." "New development that would significantly impact congestion on roads operating at LOS E or F, either currently or as a result of the project, will be denied unless improvements are scheduled to improve the LOS to D or better or appropriate mitigation is provided." The PFE, however, does not specify what would significantly impact congestion or establish criteria for evaluating when increased traffic volumes would significantly impact congestion. The following significance guidelines provided are the County's preferred method for evaluating whether or not increased traffic volumes generated or redistributed from a proposed project will "significantly impact congestion" on County roads, operating at LOS E or F, either currently or as a result of the project.

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or level of service traffic impact on a road segment, unless specific facts show that there are other circumstances that mitigate or avoid such impacts:

- The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a Circulation Element Road or State Highway currently operating at LOS E or LOS F, or will cause a Circulation Element Road or State Highway to operate at a LOS E or LOS F as a result of the proposed project as identified in Table 1, or
- The additional or redistributed ADT generated by the proposed project will cause a residential street to exceed its design capacity.

Table 1

Measures of Significant Project Impacts to Congestion on Road Segments

Allowable Increases on Congested Road Segments

		•	
Level of service	Two-lane road	Equal I	
LOSE		Four-lane road	Six-lane road
	200 ADT	400 ADT	600 ADT
LOSF	100 ADT		000 AD1
Motori	1007151	200 ADT	300 ADT

1. By adding proposed project trips to all other trips from a list of projects, this same table must be used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project that contributes any trips must mitigate a share of the cumulative impacts.

2. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.

The first significance criterion listed in Table 1 addresses roadways presently operating at LOS E. Based on these criteria, an impact from new development on an LOS E road would be reached when the increase in average daily trips (ADT) on a two-lane road exceeds 200 ADT. Using SANDAG's "Brief Guide for Vehicular Traffic Generation Rates for the San Diego Region" for most discretionary projects this would generate less than 25 peak hour trips. On average, during peak hour conditions, this would be

only one additional car every 2.4 minutes. Therefore, the addition of 200 ADT, in most cases, would result in changes to traffic flow that would not be noticeable to the average driver and therefore would not constitute a significant impact on the roadway. Significance criteria were also established for four-lane and six-lane roads operating at LOS E and are based upon the above 24 hour ADT significance criterion established for two-lane roads. The two-lane road criterion was doubled to determine impacts to fourlane roads and tripled to determine impacts to six-lane roads. This was considered to be conservative since the 24 hour per lane road capacity for a 4-lane road is more than double that of a two-lane road and the per lane capacity of a six-lane road is more than triple that of the two-lane road. For LOS E roads, the additional significance criteria are 400 ADT for a four-lane road and 600 ADT for a six-lane road. Similar to criterion for two-lane roads, the 400 ADT for a 4-lane road and 600 ADT for a 6-lane road criteria would generate less than 25 per lane peak hour trips for most discretionary projects. On average, during peak hour conditions, this would be only one additional car per lane every 2.4 minutes. The addition of 200 ADT per lane (400 ADT for a 4 lane road or 600 ADT for a 6 lane road), in most cases, would result in changes to traffic flow that would not be noticeable to the average driver and therefore would not constitute a significant impact on the roadway. Road capacities based upon level of service for County roads (two-lane, four-lane and six-lane) are provided in Attachment A.

The second significance criteria listed in Table 1 addresses roadways presently operating at LOS F. Under LOS F congested conditions, small changes and disruptions to the traffic flow on County Circulation Element Roads can have a greater effect on traffic operations when compared to other LOS conditions. In order to better account for potential effects of increased traffic on LOS F roads more stringent significance criteria was established when compared to that for LOS E. Based on this guidance, an impact from new development on an LOS F road would be reached when the increase in average daily trips (ADT) on a two-lane road exceeds 100. Again, using SANDAG's "Brief Guide for Vehicular Traffic Generation Rates for the San Diego Region" for most discretionary projects this would generate less than 12.5 peak hour trips. On average, during peak hour conditions, this would be only one additional car every 4.8 minutes. The addition of 100 ADT, in most cases, would not be noticeable to the average driver and therefore would not constitute a significant impact on the roadway. The same approach used to determine significance criteria for four-lane and six-lane roads operating at LOS E was used to determine appropriate significance criteria for four-lane and six-lane roads operating at LOS F. Based on this approach, the significance criteria for a four-lane road (200 ADT) and for a six-lane road (300 ADT) would generate less than 12.5 per lane peak hour trips for most discretionary projects. On average, during peak hour conditions, this would be only one additional car per lane every 4.8 minutes. The addition of 100 per lane ADT (200 ADT for a 4-lane road and 300 ADT for a 6-lane road) would, in most cases, not be noticeable to the average driver and therefore would not constitute a significant impact on the roadway. In summary, under extremely congested LOS F conditions, small changes and disruptions to the traffic flow can significantly affect traffic operations and additional project traffic can increase the likelihood or frequency of these events. Therefore, the LOS F ADT significance criteria was set at 100 ADT (50% of the LOS E threshold) to provide a higher level of assurance

that the traffic allowed under the threshold would not significantly impact traffic operation on the road segment.

Non-Circulation Element Residential Streets

Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots and not to carry through traffic, however, for projects that will substantially increase traffic volumes on residential streets, a comparison of the traffic volumes on the residential streets with the recommended design capacity must be provided. Recommended design capacities for residential non-Circulation Element streets are provided in the San Diego County Public and Private Road Standards. Traffic volume that exceeds the design capacity on residential streets may impact residences and should be analyzed on a case-by-case basis.

4.2 Intersections

This section provides guidance for evaluating adverse environmental effects a project may have on signalized and unsignalized intersections.

4.2.1 Signalized

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or level of service traffic impact on a road segment:

The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a signalized intersection currently operating at LOS E or LOS F, or will cause a signalized intersection to operate at a LOS E or LOS F as identified in Table 2.

Table 2 Measures of Significant Project Impacts to Congestion on Intersections Allowable Increases on Congested Intersections

Level of service	81	<u> </u>
Level of Service	Signalized	Unsignalized
LOSE	Delay of 2 seconds	20 peak hour trips on a critical movement
LOS F	Delay of 1 second, or 5 peak hour trips on a critical movement	5 peak hour trips on a critical movement

1. A critical movement is one that is experiencing excessive queues.

2. By adding proposed project trips to all other trips from a list of projects, these same tables are used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project that contributes any trips must mitigate a share of the cumulative impacts.

3. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such

traffic uses a significant amount of remaining road capacity.

The significance criterion for signalized intersections identified in Table 2 allows an increase in the overall delay at an intersection operating at LOS E of two seconds. This is consistent with the capacity threshold contained in the SANDAG's CMP and guidelines established by the City of San Diego. A delay of two seconds is a small fraction of the typical cycle length for a signalized intersection that ranges between 60 and 120 seconds. The likelihood of increased queues forming due to the additional two seconds of delay is low. Therefore, an increased wait time of two seconds, on average, would result in changes to traffic flow that would not be noticeable to the average driver. Therefore the significance guideline for intersections operating at LOS E is 2 seconds.

The primary significance criterion for signalized intersections operating at LOS F conditions was based upon increased delay at the intersection. Under LOS F congested conditions, small changes and disruptions to the traffic flow to signalized intersections can have a greater effect on overall intersection operations when compared to other LOS conditions. In order to better account for potential effects of increased traffic at signalized intersections operating at LOS F, a more stringent guideline was established when compared to signalized intersection operating at LOS E. A significance guideline of an increased delay of 1 second was established for signalized intersections operating at LOS F. An increase in the overall delay at an intersection of one second, on average, would result in changes to traffic flow that would not be noticeable to the average driver. Therefore the significance guideline for intersections operating at LOS F is 1 second.

Signalized intersections operating at LOS F also have the potential for substantial queuing at specific turning movements that may detrimentally effect overall intersection and/or road segment operations. Thus, an increase of peak hour trips to a critical move was also established as a secondary significance criterion for signalized intersections. A critical movement would be a movement or a lane at an intersection that is experiencing queuing or substantial delay and is affecting the overall operation of the intersection. The increase in peak hour trips to a critical move is a measurement of how many cars can be added to an existing queue. The addition of five trips (peak hour) per critical movement will normally be considered a significant impact. This significance criterion was selected because the five additional trips spread out over the peak hour would not significantly increase the length of an existing queue and would not be noticeable to the average driver (one trip every 12 minutes or 720 seconds). For LOS E intersections, the 5 peak hour trips to a critical movement would not be noticeable to the average driver since the one additional trip during the 12 minute interval on average would clear the traffic signal cycles well within the 12 minute period. It should also be noted that if the 5 additional peak hour trips arrived at the same time these trips would also clear the traffic cycle and existing queue lengths would be re-established.

4.2.2 Unsignalized

The operating parameters and conditions for unsignalized intersections differ dramatically from those of signalized intersections. Very small volume increases on one leg or turn and/or through movement of an unsignalized intersection can substantially affect the calculated delay for the entire intersection. Significance criteria for unsignalized intersections are based upon a minimum number of trips added to a critical movement at an unsignalized intersection.

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or level of service traffic impact on a road segment:

- The additional or redistributed ADT generated by the proposed project will add 20 or more peak hour trips to a critical movement of an unsignalized intersection, and cause an unsignalized intersection to operate below LOS D, or
- The additional or redistributed ADT generated by the proposed project will add 20 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS E, or
- The additional or redistributed ADT-generated by the proposed project will add 5 or more peak hour trips to a critical movement of an unsignalized intersection, and cause the unsignalized intersection to operate at LOS F, or
- The additional or redistributed ADT generated by the proposed project will add 5 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS F, or
- Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance or other factors, it is found that the generation rate is less than those specified above, and would significantly impact the operations of the intersection.

The significance guidelines for unsignalized intersections identify a minimum number of trips added to a critical movement at an unsignalized intersection. Since the operations of unsignalized intersections under congested conditions are heavily influenced by traffic volume increases on critical moves, the significance guidelines for unsignalized intersections were based upon the number of trips added to a critical movement. This guideline directly relates to the number of vehicles that can be added to an existing queue that forms at the intersection. A significance criteria of twenty trips (peak hour) per critical movement was used for LOS E conditions. Although delays drivers experience under LOS E condition may be noticeable, they are not yet considered

unacceptable. The twenty trips spread out over the peak hour would not likely cause the intersection delay or existing queue lengths to become unacceptable. The twenty trips (peak hour) would not be noticeable to the average driver. A significance guideline of five trips (peak hour) per critical movement was used for LOS F conditions. The five trips spread out over the peak hour would not significantly increase the length of an existing queue and would not be noticeable to the average driver.

The operations of unsignalized intersections under congested conditions are heavily influenced by traffic volume increases on critical moves. Therefore, the significance guidelines for unsignalized intersections are based upon the number of peak hour trips added to a critical movement at that intersection. This guideline examines the number of vehicles that may be added to an existing queue that forms at the intersection by the additional traffic generated by a project. In LOS E situations, the delays that drivers experience are noticeable, but are not considered excessive. A peak hour increase of twenty trips to the critical movement of an unsignalized intersection would be, on average, one additional car every 3.0 minutes or 180 seconds. Assuming the average typical for LOS E condition, this would not be noticeable to the average driver and would not be considered a significant impact.

For LOS F conditions, a significance threshold of five trips (peak hour) per critical movement was used. The five trips spread out over the peak hour would not significantly increase the length of an existing queue and would not be noticeable to the average driver. Five trips spread out over an hour would be one car every 12 minutes. This typically exceeds the average wait time in the queue and would not be noticeable to the average driver.

4.3 Ramps

Additional or redistributed ADT generated by the proposed project may significantly increase congestion at a freeway ramp. Caltrans' "Guide for the Preparation of Traffic Impact Studies" states that an operational analysis based upon Caltrans Highway Design Manual should be used in the evaluation of the ramps and in the preparation of the operational analysis that Caltrans' Ramp Metering Guidelines should be used. However, specific criteria for the determination of an impact at a ramp are not provided in the above documents.

The CMP includes guidelines for the determination of traffic impacts at a ramp. These guidelines are summarized in Table 3. Table 3 may be used as a guide in determining significant increases in congestion on ramps and for addressing congestion management plan impacts. Other factors that may be considered include ramp metering, location (rural vs. urban), ramp design, and the proximity of adjacent intersections. Coordination with Caltrans and the local jurisdiction should be conducted to determine appropriate impact criteria for the specific ramps being assessed.

' County TIF - North County Metro Fee Schedule

County of San Diego 71F Program
NORTH COUNTY METRO FEE SCHEDULE

Regional Local Total Local Total Local Local Local Total Local L			APPLICABLE FEE		-			APPLICABLE FEE	Ш
1,114/1202 1,144/1202 1,144/1202 1,144/1202 1,144/1202 1,144/1202 1,1	LAND USE CATEGORY	Regional	Local	Total		LAND USE CATEGORY	Regional	Local	1
State Stat	AGRICULTURE (OPEN SPACE)	\$880 / acre	\$253 / acre	51,133 / acre		Convenience Market (15-16 hours)	\$190,825 / Isr	\$54.825 / ksf	
\$2,001 Heta \$2,001 Het	1000								
\$2.06 i b b b b b b b b b b b b b b b b b b	AIRPORT	2-10 BA4 73-5	744.07) - + (+ 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Convenience Market (24 hours)	\$267 155 / 156	\$76,755 / 155	
State Stat	Commercial General Avietion	\$20,001 / RSI	(5) (8) (5) (5) (8) (5) (5)	13.308/23		Convenience Market (w/gasoline	\$324,403 / ksf	\$93,203 / ksf	
	Heliborts	544,002 / BOTE	\$12.642 / acre	\$56.644 / acre		Discoulat Cirib	522 800 / hef	58 570 / hef	
1520 / 10 1520		•				Discount Store	\$22,899 / kg	SS 579 / KS	٠.
1505.400 1000 1500.400 15	AUTOMOBILE					Furniture store	\$2,290 / ksf	\$55.0 1 ksf	
150,000 cm 150	Car Wash		٠			Lumber Store	\$11,450 / ksf	\$3,290 / ksf	
Strict S	Automatic	\$269,400 / acre	\$77,400 / acre	\$346,800 r acre		Home Improvement Superstore	\$15,266 / ksf	\$4,386 / ksf	
\$1,000 \$	Self-serve	\$44,900 / wash staff	\$12,900 / wash.staff	\$57,800 / wash staff		Hardware/Paint Store	\$22,899 / 135	\$5.579 / ksf	
1,250,100 Name of Lace 1,450,114 Name of	Gasoline				٠	Garden Nursery	\$15,286 / ksf	\$4,386/kg	
10,000 1	withFood Mart	\$51,725 / fueling space	\$14,861 / fueling space	\$66,586 / fueling space		Mixed Use: Commercial			
10 10 10 10 10 10 10 10	with/Food Marf & Car Wash	\$50,108 / fueling space	S14,396 / fueling space	\$64,505 / fueling space		(w/supermarket)	541,932 / ksf	\$12,062 / ksi	
Strict S	Older Service Station Design	\$48,492 / fueling space	\$13,932 / fueling space	\$82,424./ fueling space	٠	Mixed Use: Commercial/Residential	\$1,908 / unit	\$548 / unit	
\$1,220 14 14,20 14 14,00 14 14,00 14 14,00 14 14,00 14 14,00 14 14,00 14 14,00 14 14,00	Sales (Dealer & Repair)	. S16,164 / ksf	\$4,544 / ISS	\$20.808 / Ksf					
\$15,271 kd \$15,571 kd \$25,771 kd \$25	Auto Repair Center	\$6.486 / ksf	\$1,858 / Ist	\$8,323 / ksf	•	EDUCATION			
12,245 14 15 15 15 15 15 15	Auto Parts Sales	\$19,397 / ksf	\$5,573 / 155	\$24.970 / test		University (4 years)	\$1,078 / student	\$310 / student	
\$2,002 MI \$2,004 MI MI \$4,004 MI MI \$4,004 MI \$4,0	Quick Lube	\$12,831 /	121,715.	518,646/		Junior College (2 years)	\$534 / student	\$154 / student	
\$2,245 see	Tire Store	\$5.082 / ksf	22,227/165	\$10,404 / ksf		High School	\$548 / student	\$157 / student	
S1256 March S1256 March S1256 March S1351 March Marc						Middle/Junior High	\$552 / student	\$159 / student	
123.09 145 15.00 145 14.50 14.50	CEMETERY	\$2,245 / Bore	\$845 / acre	\$2.890 / acre		Elementary	\$847 / student	\$186/student	
Part	CHURCH FOR SYNAGOGIJE)	\$3,596 / 165	51,033 / ksf	54.630 / tsf		Day Care	51.831 / Chiad	Dirico / cocce	
Page						FINANCIAL			
State Stat	COMMERCIAL/RETAIL					Bank (Walk-In only)	\$51,860 / 155	\$14,900 / Icsf	
Oaceze, more than S19,801 / ksf \$57,81 / ksf \$25,721 / ksf Dinye-Through only (one-way) \$84,518 / kse H., w/lasually 3+ major \$19,801 / ksf \$57,81 / ksf \$25,721 / ksf Dinye-Through only (one-way) \$26,418 / kse 400,000-800,000 sq. \$28,002 / ksf \$28,007 / ksf </td <td>Super Regional Shopping Center</td> <td>. S15,715 / ksf</td> <td>\$4,515 / ksf</td> <td>\$20,230 / ksf</td> <td></td> <td>with Drive-Through</td> <td>\$69,146 / 154</td> <td>\$19.868 / ksf</td> <td></td>	Super Regional Shopping Center	. S15,715 / ksf	\$4,515 / ksf	\$20,230 / ksf		with Drive-Through	\$69,146 / 154	\$19.868 / ksf	
H. witsually 3+ major Stage (1 kst) Stage (1 kst) <th< td=""><td>(More than 80 acres, more than</td><td></td><td></td><td></td><td></td><td>Drive-Through only</td><td>\$88,433 / lane</td><td>524, 533 / lane</td><td></td></th<>	(More than 80 acres, more than					Drive-Through only	\$88,433 / lane	524, 533 / lane	
Page Fig. Page Fig. Page Fig.	800,000 sq. ft., w/usually 3+ major		-			Drive-Through only (one-way)	343,216 / Jane	\$12,416 / lane	
Difference State	stores)			111111111111111111111111111111111111111		Savings & Loan	E20,741/154	\$5,980 / ksf	
### HOSPITAL Propried content	Keglonal Snopping Center	12) / 156, E16	153 / 14/ '64	ISN / 1.7/'676		Drive-I brough only	\$66,433 / Inne	. \$24,633 / lane	
HOSPITAL SSG.014 SSG.05 Itsel SSG.05 Itsel General General General SSB.00 SSG.05 Itsel General General General SSB.00 SSG.05 Itsel General General General SSB.00 Itsel General SSB.00 Itsel General General SSB.00 Itsel General SSB.00 Itsel Itse	(40-80 acres, 400,000-800,000 sq.					Dave-I hrough only (one-way)	543,218 / lane	512,416 / lane	
1.25,000-400,000 sq. 1.25,000-40,000 40,000-40	II. Widsdaily 24 Itiajoi stoles) Community Shopping Center	528 0 8 4 Kst	\$8 050 / ksf	\$36.067 / ksf		HOSBITAL			
Timejor store, Time	(15-40 acres, 125,000-400,000 sq.					General	\$8.800 / bed	\$2,528 / bed	
INDUSTRIAL INDUSTRIAL Industrial/Business Park (commercial 185,101 / ksf 186,101 / k	ft., w/usually 1 major store,					Convalescent/Nursing	\$1,320 / bed	\$379 / bed	
INDUSTRIAL INDUSTRIAL INDUSTRIAL INDUSTRIAL INDUSTRIAL Industrial Business Park (commercial included) 5 acres, less than Industrial Park (no commercial) 5 acres, less than 1 acres, less tha	detached restaurant(s), grocery and		4			•			
Industrial/Business Park (commercial 554,101 / kst Industrial/Business Park (commercial 537,17 / kst Industrial/Business Park (commercial 537,17 / kst Industrial Park (no commercial 537,17 / kst S19,652 /	drugstore)					INDUSTRIAL			
Industrial Park (no commercial) 35,520 tsf	Neighborhood Shopping Center	542,026 / tsf	\$12,074 / ksf	\$54,101,7ksf		Industrial/Business Park (commercial	\$5,747 / kg	\$1,651 / bsf	
### ##################################	(Less than 15 acres, less than					included)	Test to Charles	Jen / 1840 13	
### Stack St	125,000 sq. ft., w/usually grocery &					industrial Park (incommercial)	SI / OZE CE	15/1/10/14	
######################################	drugstore, cleaners, beauty &					Manufacture (muluple solits)	24,533 Led	14/167)¢	
Page 1 of 4 Page 2 of 4 Page 3 Page 2 of 4 Page	barber shop, & fast food services)			,	•	Manhaconing Assembly	51,742,183 53,478,164	150 / 100 6	
Science Signature Signat	Common Choose		٠.			Storage	5871 (lts)	\$250 / ksf	
tail/Strip Commercial \$15,286 / ksf \$4,386 / ksf \$19,622 / ksf Landfill & Recycling Center \$2613 / sace ***Lubration* \$10,082 / ksf \$24,585 / ksf \$14,585 / ksf \$18,786 / ksf \$18,786 / ksf ***Libration* \$15,286 / ksf \$10,486 / ksf \$10,486 / ksf \$18,786 / ksf \$18,786 / ksf \$23,248 / ksf \$10,448 / ksf \$10,686 / ksf \$14,217 / ksf \$14,217 / ksf \$14,217 / ksf \$25,248 / ksf \$10,686 / ksf \$17,2006 \$17,2006 \$1,087 / ksf \$14,217 / ksf			-			Science Research & Development	53.484 / 151	\$1,001 / ksf	
1.18PARY	Specialty Retail/Strip Commercial	\$15,286 / ksf	54,386 / ksf	519,652 / ksf		Landfill & Recycling Center	\$2,613 / age	S751 / acre	
515.256 / ksf 54,356 / ksf 519,622 / ksf 519,632 / ksf 519,556 / ksf 519,566 / ksf 519	Electronics Superstore	\$19,083 / ksf	\$5,483 / ksf	\$24,565 / Isst					
S57.248 kf \$16,448 ks \$73,595 ks \$59,569 ks \$54,217 ks LODGING \$54,217 ks \$54,217 ks \$56,569 ks \$54,217 ks \$56,500 ks \$50,500	Factory Outlet	\$15,286 / ksf	54,386 / ksf	S19,652 / ksf		LIBRARY	\$10,756/1sf	\$5,676 / ksf	
006-01-23] - Revised (2).34 Equation (2006-01-23) - Revised (2).34 Equation (2006-01-23) - Revised (2).34 (2006-01-23) - Revised (2).34 (2006-01-23) - Revised (2).35 (2006-01-23) - Revis	Supermarket	557,248 / ksf	\$16,448 / ksf	\$73,6957 KSI \$44,217 / kSI		SNIEGO			
006-01-23) - Revised (2) as Page 1 of 4 3/71/2006 I NORTH COUNTY METRO	a constant								
	Expanded Fee Schoolins (2006-01-23) - Revised (2).xts	Page 1 of 4		3/7/2006		Expended Fee Schedules (2006-01-23) - Revised (2).uts / NORTH COI NOTY METRO	Page 2 of 4		
	/ NOATH CONTT MEI'NO	- - - -		-			1		

\$1,387 / student \$568 / student \$705 / student \$711 / skudent \$732 / student \$2,455 / child

\$29,476 / ksf \$29,476 / ksf \$2,448 / ksf \$14,739 f \sq \$19,652 / ksf \$19,552 / ksf

\$54,043/ksf

\$2.457 / unit

\$245,6507.85

Total

County of San Diego 7IF Program
NORTH COUNTY METRO FEE SCHEDULE

\$343,910 / ksf \$417,605 / ksf \$89,759 / ksf \$89,012 / ksf \$111,285 / lane \$55,633 / lane \$28,704 / ksf \$11,285 / lane \$55,633 / lane

\$11,329 / bed \$1,689 / bed

\$2,243 / ksf \$2,803 / ksf \$1,121 / ksf \$4,485 / ksf

\$25,432 / ksf

\$3,384 / acre

\$4,532 / ksf \$5,607 / ksf

\$7,388 / lesf

3/7/2006

County of San Diego TIF Program NORTH COUNTY METRO FEE SCHEDULE

NORTH COU	NORTH COUNTY METRO FEE SCHEDULE	E SCHEDULE			
LAND USE CATEGORY	Regional	Local	Total		LAND USE CATE
Hotel (w/convention facilities/restaurant)	\$4,310 / room	\$1,238 / room	\$5,548 i room		Tennis Courts Sports Facilities
Motel	\$3.879 / room	\$1,115 / room .	\$4,994 / room	٠.	Outdoor Stadium
Resort Hotel Business Hotel	\$3,448 / room \$3,017 / room	\$887 / room	\$4,439 / room \$3,884 / room		Racetrack
MILITARY	\$1,100 / person	\$318 / person	\$1,416 / person		i heaters (multiplex w/m
Onion					RESIDEN HAL Estate, Urban or Rural
Standard Commercial Office	\$8,621 / ksf	\$2,477 /ksf	\$11,098 / kst.		(average 1-2 DU/acr
(less than 100,000 sq. ft.)	*****	***************************************	60 634 1144		Single Family Detached
Large (High-Rise) Commercial Office (more than 100,000 sq. ft., 6+	\$7,404 / ksf	. \$2,1277 ks1	\$9,531 / 651		Condominium
stories)	46 37% (V-4	ed 500 / Led	54 774 175		(or any multi-family t
Office Park (400,000+ sq. ft.)	\$5,226 / RSI	\$1,502 / KST	\$0,1201 EST		Anariment
Corporate Headquarters	\$3,049 / ksf	\$876 / kgt	\$3,925/ksf		(or any multi-family u
Government (Civic Center)	\$11,315/ksf	\$3.251 / ksf	\$14,586 / ksf		20 DU/acre)
Central/Malk-In Only	\$33.944 / 651	\$9.752 / ksf	\$43,697 / KSI		Military Housing (off-bas
Community (not including mail drop lane)	\$75,432 / ksf	\$21,672 / ksf	\$97,104 / ksf		(less than 6 DU/acre)
Community (w/mail drop lane)	\$113,148 / ksf	\$32,508 / ksf	\$145,856 / ksf		Family
Mail Drop Lane only	\$565,740 / lane	\$162,540 / Jane	\$728,280 / tane		Adults Only
Mail Drop Lane only (one-way)	\$282,870 / lane	\$81.270 / lane	\$364,140 / Jane		Congregate Care Facility
Department of Motor Vehicles	\$67.889 / ksf	\$19,505 / ksf \$5.805 / ksf	\$87,394 / ksf \$26,010 / ksf	, .	RESTAURANT
PARKS					Quality Sit-down, high turnover
City (developed w/meeting rooms and sports facilities)	521,103 / Bore	\$6,063 / acre	\$27.166 / acre		Fast Food (without drive
Regional (developed)	58,441 / acre	52,425 / acre	\$10,866 / acre		Delicatessen (7am-4pm)
Neighborhood/County (undeveloped)	\$2,110 / acre	\$606 / acre	\$2,717 / acre		TRANSPORTATION
Amusement (Theme)	\$33,765 / acre	\$9,701 / acre	\$43,486 / acre		Bus Depot
San Diego Zoo	\$48,537 / scre	\$13,945 / acre	\$62,482 / acre		Truck Terminal
Sea World	\$33,765 / scre	\$9,701 / acre	. '\$43,466 / acre		Waterport/Marine Termii Transit Station (Light Ra
RECREATION				• .	Park & Ride Lots
Beach, Ocean or Bay	\$245,154 / kff shore	\$70,434 / kif shore	\$315,588 / kff shore		. Parx & Ride Lots
Bowling Center	\$12,258 / ksf	\$3,522 / ksf	\$15,779 / hsf		•
Campground	\$1,634 / campsite	\$470 / campsite	\$2,104 / campsite		
Golf Course	\$2,860 / acre \$28,601 / acre	\$8.22 / acre \$8.217 / acre	\$3,682 / acre \$36,819 / acre		
Marinas	\$1,634 / berth	\$470 / berth	\$2,104 / berth		
Multi-purpose (miniature golf, video	\$36,773 / acre	\$10,565 / acre	\$47,336 / agre	-	•
Racquetball/Health Club	512,258 / ksf	\$3,522 / ksf	\$15.778 / ksf		
Expanded Fae Schedules (2006-01-23) - Ravised (2) xts	Page 3 of 4		3/7/2006		Expended Fee Schedules (2005-01-23) I NORTH COUNTY METRO
I NORTH COUNTY METRO	Page 3 of 4		3/7/2006		INORTH COUNTY METRO

County of San Diego TIF Program NORTH COUNTY METRO FEE SCHEDULE

. Park & Ride Lots	Park & Ride Lots	Transit Station (L	Waterport/Marine Terminal	Truck Terminal	Bus Depot	TRANSPORTATION	Delicatessen (7am-4pm)	Fast Food (without drive-through)	Fast Food (w/drive-through)	Sit-down, high turnover	Quality	RESTAURANT	Confingation Care	Congregate Care Facility	Retirement Community	Adults Only	Family	Mobile Hame	(6-20 DU/acre)	(less than 6 DU/acre)	Military Housing	ZV DOMAG,	(or any multi-	Apartment	(or any multi-	Condominium	(average 3-6 DU/acre	Single Family Detached	(average 1-2 DU/acre)	Estate, Urban or Rural	RESIDENTIAL		Theaters (multiplex w/matinee)	Racetrack	Indoor Arena	Outdoor Stadium	Sports Facilities	Tennis Courts	LAND USE		
		Transit Station (Light Rail w/parking)	Terminal			_	m_4pm)	ut drive-through)	∕e-through)	mover ·		,	a deminy	Facility	nunity .		٠		(e))U/acre)	Military Housing (off-base, multifamily)		(or any multi-family units more than		(or any multi-family 6-20 DU/acre)		DU/acre)	lached	DU/acre)	Rural			ex w/matinee)			ium	•		AND USE CATEGORY		NOXITICOL
\$179,600 i acre.	\$179,600 / acre	\$134,700 / acre	576,330 / berth	\$4,490 / ksf	\$11,2251ksf	. •	\$59,268 / ksf	\$276,584 / ksf	\$256,828 / Ksf	\$63,210 / ksf	\$39,5121151			\$1.091 Junit	\$1,742 / unit	\$1,307 / unit	\$2,178 / unit	•	52,613 / unit	\$3.484 / unit			•••	\$2,613 / unit		33,484 / Und		\$4,355 / Unit		\$5,226 / unit		y.	\$29,814 / ksf	\$16,344 / acre	\$12,258 / acre	\$20,430 / sore		\$6,537 / acre	Regional	,	NORTH COUNTY METRO FEE SCHE
\$51,600 / acre	\$51,600 / acre	\$38,700 / acre	\$21,930 / berth	\$1,290 / ksf	\$3,225 / ksf		\$17,028 / ksf	\$79.464 / ksf	\$73,788 / ksf	\$18,163 / ksf	\$11,352 / ksf		-	\$313 / unit	\$501 / unit	\$375 / unit	\$626 / unit		\$751 / unit	\$1,001 / unit	× .	,		\$751 / unit		91,001 7 CHM	** Pri	31.2317 UIIN		\$1,502 / unit	4		\$8,566 / ksf	\$4,896 / acre	\$3,522 / acre	\$5,870 / scre		\$1,878 / acre	Locai	APPLICABLE FEE	SOUPPOLE
\$231,200 / acre	#231,2007 BOTE	\$173,400 / scre	398,260 / benh	\$5,760 / ksf	\$14,450 / ksf	! ! ! !	\$78,298 / ksf	\$356,048 / ksf	\$330,616 / ksf	\$81,382/ksf	\$50,884 / ksf	•		\$1,405 / unit	\$2.243 / unit	\$1,082/unit	\$2,803 / unit	Q	\$3.384 / unit) ##S/m		· · · ·		\$3.364 / unit		To the same	\$4.485 / und		55 F07 (m)	\$6,728,/unit			\$38,379 / Ksf	\$21,039 / acre	\$15,779 / acre	\$26,299 / scre		\$8,416 / acre	Total		

Page 4 of 4

3/7/2006

APPENDIX B

> Excerpts from the University Commons Report

University Commons Specific Plan Amendment

Traffic Analysis
Revised: December 12, 2000

The City of San Marcos

Prepared By:

Prepared for:



2251 San Diego Avenue, Suite B-110 San Diego, California 92110 (619) 683-2933 Fax (619) 683-7982

In cooperation with:

P & D Consultants 401 West B Street San Diego, CA 92101 JA0397

4.0 Project Traffic

The University Commons Specific Plan Area consists of approximately 416 acres. Proposed land uses in University Commons include single and multi-family residential, commercial, industrial, recreational and open space uses. This section defines the amount of trips that would be expected from these developments.

Project-Related Traffic

Any increase in the intensity of use of the site will result in some level of increase in traffic on streets and driveways leading to the site. Any traffic that can be attributed to the proposed project site is known as project-related traffic. Project-related traffic consists of trips on the street system that begin or end on the project site as a result of the development of the proposed project. Project related traffic is a function of the extent and type of development proposed for the site. This information is used to establish trip generation for the site.

Project Trip Generation

Trip generation is a measure or forecast of the number of trips that begin or end at the project site. All or part of these trips will result in traffic increases on the streets where they occur. The traffic generated is a function of the extent and type of development proposed for the site.

Vehicular traffic generation characteristics for projects are normally estimated based on rates in the San Diego Association of Governments (SANDAG) "(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region" (dated 1998). This manual provides standards and recommendations for the probable traffic generation for various land uses based upon local, regional and nation-wide studies of existing developments in comparable settings. Appendix C contains excerpts from the trip generation manual used in this analysis.

A distinction is drawn between total project vehicle trips and external project vehicle trips. The total project vehicle trips are all trips that will be made to or from the project when it is ultimately constructed. The external project vehicle trips are the total project vehicle trips minus the project vehicle trips that are captured within the project itself. Since the proposed project consists of a variety of land uses (residential, industrial, recreation and commercial), some portion of the trip purposes will be satisfied within the boundaries of the project site itself. This phenomenon is defined as an internal trip capture. By examining the relative trip generation potential of the trip attractors (industrial, recreational and commercial) as compared to the project as a whole, an internal trip capture rate of 4% was used for the near-term and long-term future analysis. The internal capture rate was determined by analyzing the different land uses that comprise the proposed project. A conservative percentage of the total trips generated by the trip attractors of the proposed project was assumed to originate from the within project (e.g. a resident makes a trip to the store to purchase flu medicine). The percentage of these trips compared to the total trips generated by the project results in the internal trip capture rate. The external project trips are used in this traffic impact study because this number directly describes the impact the proposed project has on the surrounding roadway network.

Table 3 summarizes the trips generated by the proposed project.

Table 3
Trip Generation for University Commons- Approved, Preferred and Alternative Plans

Land Use	Intensity/ Unit	Daily Trip Rate per Unit	Daily Trips	AM In	AM Out	PM In	PM Out
University Commons Project- As Approve	d				· · · · · ·		. <u></u>
Single Family Residential	489 du	10/du	4,890	117	274	342	147
Multi-family Residential (<20/acre)	267 du	8/du	2,136	34	137	150	64
Multi-family Residential (>20/acre)	947 du	6/du	5,682	91	364	358	153
Elementary School	10 acres	60/acre	600	101	67	13	29
Village Commercial Zone (Neighborhood Shopping Center)	30,000 sf	120/ksf	3,600	86	58	180	180
Recreation Area (Developed City Park)	10 acres	50/acre	500	10	10	20	20
Subtotal University Commons As Approv	red		17,408	440	909	1,062	594
University Commons Project "Preferred F	Plan"						
Single Family Residential	471 du	10/du	4,710	113	264	330	141
Multi-family Residential (<20/acre)	225 du	8/du	1,800	29	115	126	54
Multi-family Residential (>20/acre)	480 du	6/du	2,880	46	184	181	78
Mixed-Use Area (Neighborhood Comm'!)	25,000 sf	120/ksf	3,000	72	48	150	150
Recreation Area (Developed City Park)	6.1 acres	50/acre	305	6	6	12	12
Light Industrial	12.8 acre	200/acre	2,560	246	61	61	246
Phase One Subtotal			9,072	194	402	555	330
Phase Two Subtotal			6,183	318	277	306	351
Subtotal University Commons "Preferred	'Plan"		15,255	<i>512</i>	679	861	681
Net Change Approved vs Preferred Plan			-2,153	72	-230	-202	87
University Commons Project "Alternative	Plan"						
Phase One							
Single Family Residential	581 du	10/du	5,810	. • •	, 325	407	174
Multi-family Residential	225 du	8/du	1,800	29	115	126	54
Mixed-Use Area (Neighborhood Comm'l)	25,000 sf	120/ksf	3,000	72	48	150	. 150
Recreation Area (Developed City Park)	6.1 acres	50/acre	305	6	6	12	12
Light Industrial	12.8 acre	200/acre	2,560	246	61	61	246
Phase One Subtotal			7,919	181	323	487	300
Phase Two Subtotal			<i>5,556</i>	311	233	269	336
Subtotal University Commons "Alternativ	ve Plan"		. 13,475	492	556	756	636
Net Change Approved vs Alternative Plai			-3,933	<i>52</i>	<i>-353</i>	-306	43

Table 3 shows that the University Commons "Preferred Plan" will generate a total of 9,072 daily trips in Phase One and 6,183daily trips in Phase Two for a total of 15,255 daily trips. This represents a reduction of 2,153 daily trips from what was previously approved for the site. The "Alternative Plan" project will generate 7,919 daily trips in Phase One and 5,556 daily trips in Phase Two. The total trip generation for the "Alternative Plan" is 13,475, or 3,933 fewer trips than the number of trips that would have been generated by the previously approved project. Phase One consists of roughly sixty-percent of the residential development, the mixed-use area and the recreation area. In Phase Two the remainder of the residential and light industrial area will be developed.

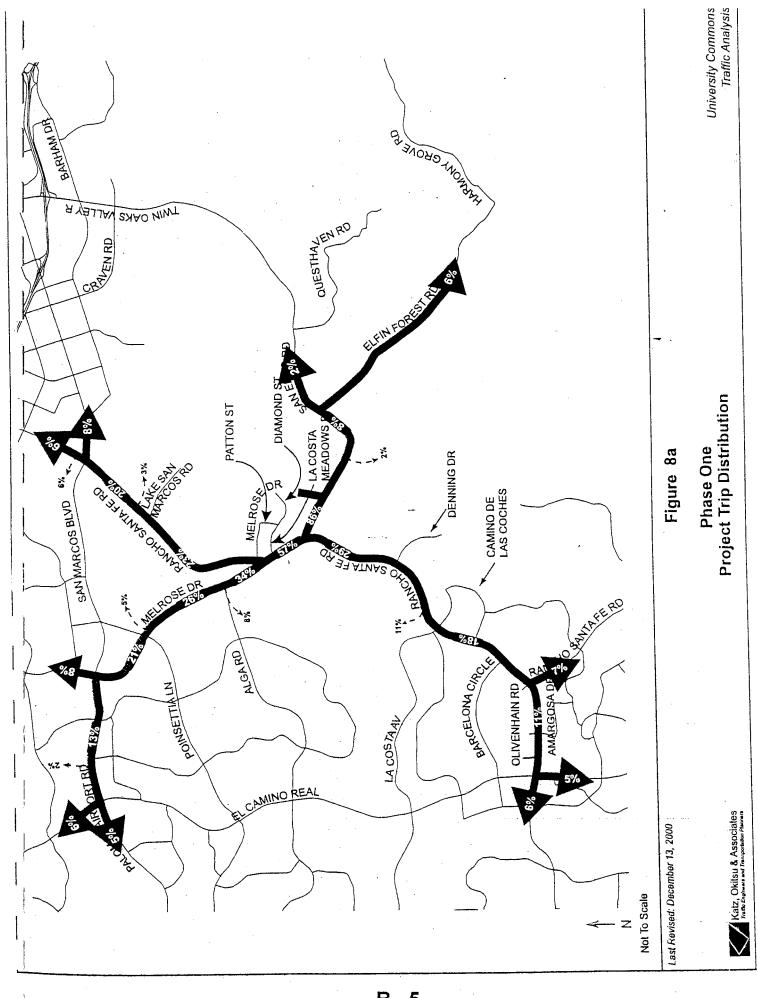
Project Trip Distribution

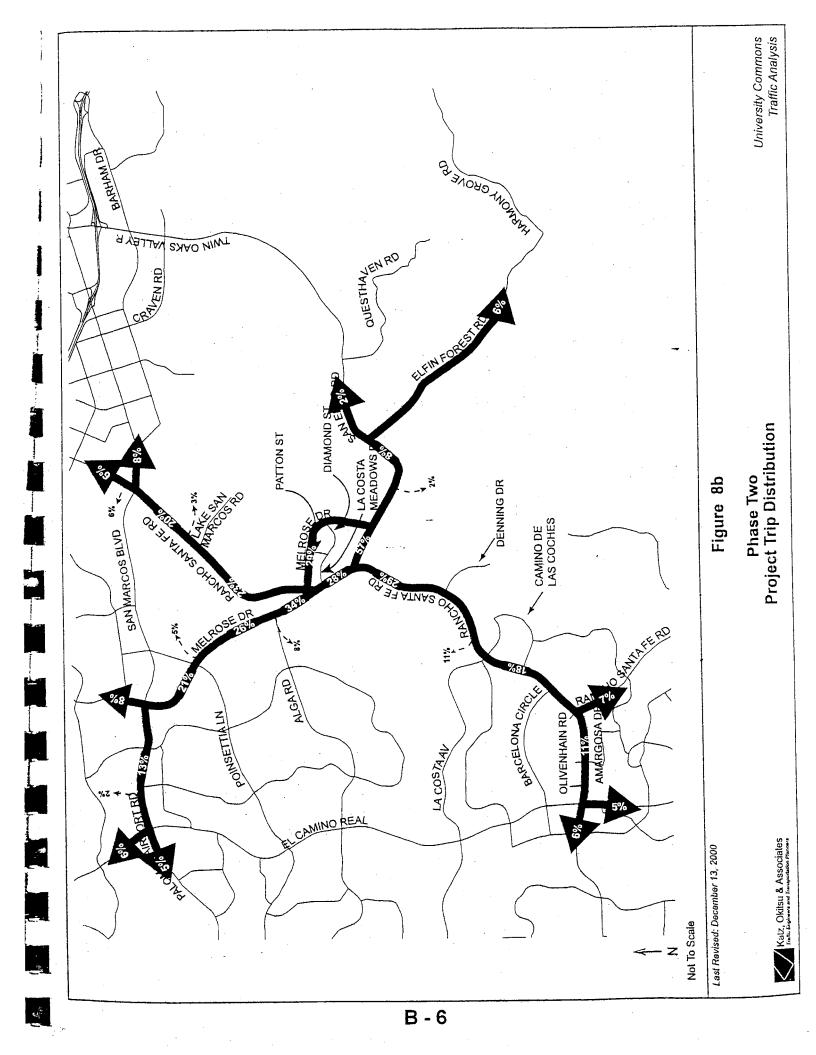
Trip distribution is the process of identifying the probable destinations, directions, or traffic routes that project related traffic will likely affect. The potential interaction between the proposed development and surrounding residential areas, services, and regional access routes are considered in order to identify the routes where project traffic will distribute.

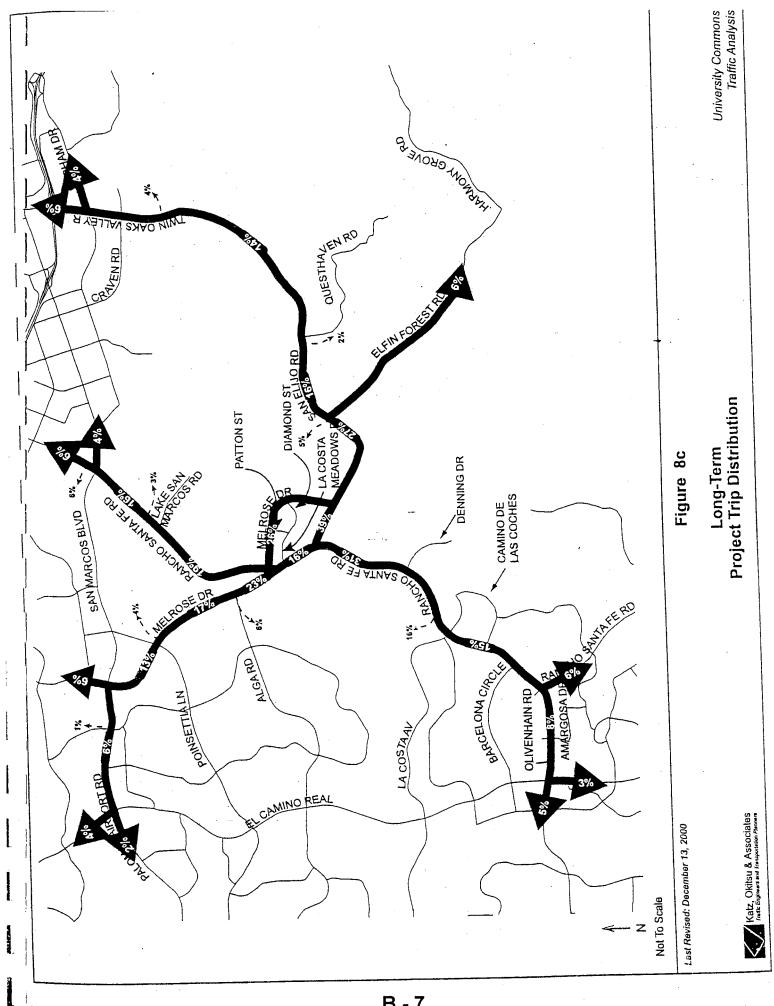
Trip distribution information can be estimated from observed traffic patterns or experience. It can also be obtained from regional traffic forecasting models developed to analyze future traffic conditions on readways. In the San Diego region, SANDAG has prepared a traffic-forecasting model, products that are available to municipalities and consultants. Trip distribution information can be obtained from the SANDAG traffic model.

Katz, Okitsu & Associates used SANDAG's Year 2005 and Year 2020 Cities/County travel demand models and commissioned a select zone analysis for the project for both the near-term and long-term scenarios. This analysis provided a distribution and assignment of project traffic onto the roadway network. Appendix C contains a copy of the SANDAG plots showing the study area and distribution.

Figures 8a and 8b show the proportion of project traffic that will use various street segments under near-term and long-term conditions. Figures 9a, 9b and 9c show the net increase in trips that the proposed project "Preferred Plan" will add to the surrounding street network, and Figures 9d, 9e and 9f show the same information for the "Alternative Plan" scenario.







B - 7

APPENDIX C

> Existing Conditions Analysis Worksheets

Existing-AM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd Lanes, Volumes, Timings 1/25/2006

tions 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	BL EBT 4.0 4.0 1.00 1.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4.0 1.00	WBL	WBT	WBR	NBL -	- NBT	- RB	SBL	SBT	
T C C C C C C C C C C C C C C C C C C C	"	-	ı	WBT	WBR	NBL	NBT	NBR	SBL	SHT	ď
2.0	· · · · · · · · · · · · · · · · · · ·	. —	*							,	ĵ
	T	-		.		*-	ŧ			‡	X
	•	_		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	· , •		1.00	100	1.00	1.00	0.95	1.00	1.00	0.95	1.00
				0.851							0.850
	·		0.950			0.950					
	•			1585	0	1770	3539	0	0	3539	1583
	, "		0.950			0.950					
oR)	, -	0		1585	0	1770	3539	0	0	3539	1583
×	-			134							307
Volume (vph)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 The state of the		0	790	-	239	423	691	0	0	476	289
Adj. Flow (vph)	0	0	840	-	254	450	735	0	0	506	307
Lane Group Flow (vph)		0	840	255	0	450	735	0	0	506	307
Turn Type			Pro			Prot			,		Perm
Protected Phases			က	∞		ς,	2			9	
Permitted Phases											9
Detector Phases			က	œ		S	2			9	9
Minimum Initial (s)			4.0	4.0		4.0	4.0			4.0	4.0
t (s)				20.5		8.5	20.5			20.5	20.5
	0.0 0.0	0.0	53.0	53.0	0.0	32.0	53.0	0.0	0.0	21.0	21.0
Total Split (%) 0.0%	%0.0 %	0.0%	50.0%	20.0%	0.0%	30.2%	50.0%	0.0%	%0.0	<u>~</u>	19.8%
Yellow Time (s)			3.5	3.5		3.5	3.5			3.5	3.5
All-Red Time (s)			1.0	1.0		1.0	1.0			0,1	1.0
Lead/Lag						Lag				Lead	Lead
_ead-Lag Optimize?						Yes				Yes	Yes
Recall Mode			None	None		None	C-Max			C-Max	C-Max
Act Effct Green (s)			49.0	49.0		28.0	49.0			17.0	17.0
Actuated g/C Ratio			0.46	0.46		0.26	0.46			0.16	0.16
v/c Ratio			1.03	0.32		96.0	0.45			0,89	09.0
Control Delay			67.9	93		66.6	17.1			63.0	10.0
Queue Delay			0.0	0.0		0.0	0.0			0.0	0.0
Fotal Delay			67.9	9.3		9.99	17.1			63.0	10.0
SOT			ш	∢		w	80			ш	60
Approach Defay				54.3			35.9			43.0	
Approach LOS				۵			Ω			٥	
otersection Summary											

Cycle Length: 106

Actuated Cycle Length: 106
Offset: 93 (88%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum vic Ratio: 1.03
Intersection Signal Delay, 44.3
Intersection Capacity Utilization 95.1%
Incl. Level of Service
Analysis Period (min) 15

Intersection LOS; D ICU Level of Service F

Y:040912-Lago De San Marcos (STD)/Analysis\Synchro\01-25-06\Existing AM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

Existing-AM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd Splits and Phases: 1: SR-78 WB On Ramp & Rancho Santa Fe Rd anes, Volumes, Timings 1/25/2006

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Existing AM.sy7
J. Bavos\V Haskell
Damell & Associates, Inc.

Existing-PM 1/25/2006 Lanes, Volur

Larres, volumes, Timings	mings					+;	SR-78	1: SR-78 WB On Ramp & Rancho Santa Fe Rd	Ramp &	Rancho	Santa	Fe Rd
	4	†	<i>></i>	>	ţ	4	•	•	•	٠		+
ane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane Configurations				y -	2.		*	+			*	R
otal Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
ane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	9	0.95	1.00	1.00	0.95	1.00
t.					0.850							0.850
Fit Protected				0.950			0.950					
Satd. Flow (prot)	0	0	0	1770	1583	0	1770	3539	0	0	3539	1583
=It Permitted				0.950			0.950					
Satd. Flow (perm)	0	, ,	0	1770	1583	0	1770	3539	0	0	3539	1583
Satd. Flow (RTOR)					216							430
Headway Factor	8	00.	1.00	1.00	1.00	1.00	1.00	00.1	1.00	1.00	1.00	1 00
Jolume (vph)	0	0	0	450	0	243	707	693	0	0	437	404
Adj. Flow (vph)	0	0	0	479	0	259	752	737	0	0	465	430
-ane Group Flow (vph)	0	0	0	479	259	0	752	737	0	0	465	430
'um Type				Prot			Pro			•		Perm
Protected Phases				က	80		5	7			9	
Permitted Phases												9
Detector Phases				3	80		5	2		٠	9	ဖ
Vinimum Initial (s)				4.0	4.0		4.0	4.0			4.0	4.0
Minimum Split (s)		•		8.5	20.5		8.5	20.5			20.5	20.5
fotal Split (s)	0.0	0.0	0.0	0.69	69.0	0.0	78.0	111.0	0.0	0.0	33.0	33.0
otal Split (%)	0.0%	%0.0	%0.0	38.3%	38.3%	%0.0	43.3%	61.7%	0.0%	%0.0	18.3%	18.3%
rellow Time (s)				3.5	3.5		3.5	3.5			3.5	3.5
All-Red Time (s)				1.0	1.0		1.0	1.0		,	1.0	10
.ead/Lag							Lead				Lag	Lag
.ead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		None	C-Max			C-Max (C-Max
Act Effct Green (s)				52.4	52.4		82.2	119.6			33.4	33.4
Actuated g/C Ratio				0 29	0.29		0.46	99.0			0.19	0 19
v/c Ratio				0.93	0.42		0.93	0.31			0.71	0.67
Control Defay				86.8	10.8		49.1	1.7			76.4	108
Queue Delay				0.0	0.0		0.1	0.2			0.0	0.0
Fotal Delay				86.8	10.8		49.2	6.			76.4	108
SOI				IL.	œ		۵	∢			ш	03
Approach Delay					80.2			25.8			44.9	
Approach LUS					נג			ပ			۵	

Intersection Summary Cycle Length: 180

Actuated Cycle Length: 180
Offset; 96 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum vic Ratio: 0.93

· . .

Intersection LOS: D ICU Level of Service F

Intersection Signal Delay: 39.4 Intersection Capacity Utilization 99.1% Analysis Period (min) 15

Existing-PM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd Splits and Phases: 1: SR-78 WB On Ramp & Rancho Santa Fe Rd Lanes, Volumes, Timings 1/25/2006

A of The Control of T

040912-Lago De San Marcos Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Existing PM.sy7 J. Bavos\V Haskell
Darnell & Associates, Inc.

040912-Lago De San Marcos

Y 1040912-Lago De San Marcos (STD)/Mnalysis/Synchro\01-25-06\Existing PM.sy7 J. Bavos/V Haskell
Darnell & Associates, Inc.

Existing-AM 1/25/2006

Lanes, Volumes, Timings	mings					5	SR-78	EB On	Ramp 8	Ranch	2: SR-78 EB On Ramp & Rancho Santa Fe Rd	Fe Rd
	4	- †	/	>	↓	4	•	4	*	٠	-	7
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SAR
Lane Configurations		43	K K					*	R	K	*	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	- 4	4.0	4.0	- 4	4.0
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
			0.850						0.850			
Fit Protected	•	0.950								0.950		
Satd. Frow (prot) Fit Dermitted	•	17/0	2787	0	0	0	0	3539	1583	1770	3539	0
Satd Flow (nerm)	c	0.50	7976	Ċ	c	•	(0	,	0.950		
Satd. Flow (RTOR)	•	-	99	>	>	>	>	3539	543	2	3539	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	00	00	1 00	9
Volume (vph)	301	0	710	0	0	0	0	654	489	167	1309	0
Adj. Flow (vph)	334	0	789	0	0	0	0	727	543	186	1454	0
Lane Group Flow (vph)	0	334	789	0	0	0	0	727	543	186	1454	0
Tum Type	Perm		Perm						Perm	Prot		
Protected Phases		4						2		-	œ	
Permitted Phases	4		゙゙゙゙゙゙゙゙゙゙゙゙゙゙					ı	2			
Detector Phases	4	4	4					2	2	-	9	
Mintmum Initial (s)	4.0	4.0	4.0					4,0	4	4	4	
Minimum Split (s)	20.5	20.5	20.5					20.5	20.5	8,5	20.5	
Total Split (s)	43.0	43.0	43.0	0.0	0.0	0.0	0.0	40.0	40.0	23.0	63.0	0.0
	40.6%	40.6%	40.6%	%0.0	%0.0	%0.0		37.7%	37.7%		59.4%	%00
Yellow Time (s)	3.5	3.5	35					3.5	3.5		3.5	<u>.</u>
All-Red Time (s)	1.0	1.0	1.0					1.0	0.1	1.0	0	
_ead/Lag								Lag	Lad	Lead		
-ead-Lag Optimize?								Yes	χes	Yes		
Recall Mode	None	None	None				Ŭ	_	C-Max		C-Max	
Act Effct Green (s)		34.0	34.0					44.4	44.4		64 0	
Actuated g/C Ratio		0.32	0.32					0.42	0.42	0.15	09.0	
I/c Ratio		0.59	0.85					0.49	0.55	0 73	0.68	
Control Delay		34.0	40.1					110	2.6	56.4	4 7	
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Fotal Delay		34.0	40.1					110	2.6	56.4	4 4	
SO:		ပ	۵					0	₹	· w	9	
Approach Delay		38.3						7 4		!	10.8	
Approach LOS		۵						<			00	
											ì	

Cycle Length: 106

Intersection Summary

Actuated Cycle Length: 106 Offset: 89 (84%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle: 55

Control Type: Actuated-Coordinated Maximum vic Ratio. 0.85 Intersection Signal Delay: 17.4 Intersection Capacity Utilization 95.1% Analysis Period (min) 15

Intersection LOS: B ICU Level of Service F

040912-Lago De San Marcos Y:\040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Existing AM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Existing-AM 2: SR-78 EB On Ramp & Rancho Santa Fe Rd 2: SR-78 EB On Ramp & Rancho Santa Fe Rd 9° ♦ Lanes, Volumes, Timings Splits and Phases: 1/25/2006

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Existing AM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

Existing-PM	2: SR-78 EB On Ramp & Rancho Santa Fe Rd
1/25/2006	Lancs, Volumes, Timings

Lanes, Volumes, Timings	imings					2:	SR-78	EB On I	Ramp &	Ranch	2: SR-78 EB On Ramp & Rancho Santa Fe Rd	Fe Rd
	1	Ť	<i>></i>	>	↓	1	*	←	*	٨		7
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		**	ليونو					+	¥.,	¥-	*	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4	0.4	0.4
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
F			0.850						0.850			
Fit Protected		0.953								0.950		
Satd. Flow (prot)	0	1775	2787	0	0	0	0	3539	1583	1770	3539	0
Fit Permitted		0.953								0.950		•
Satd. Flow (perm)	0	1775	2787	0	0		O	3539	1583	1770	3539	C
Satd. Flow (RTOR)			420		1	,	•		454			•
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	100	1 00	100	100	1 00	100
Volume (vph)	384	2	512	0	0	0	0	1066	670	220	969	C
Adj. Flow (vph)	400	2	533	0	0	0	0	1110	698	229	725	C
Lane Group Flow (vph)	0	402	533	0	0	0	0	1110	698	229	725	0
Turn Type	Perm		Perm						Perm	Prot		
Protected Phases		4						2		-	9	
Permitted Phases	4		4						7			
Detector Phases	4	4	4					2	2	•	9	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4 0	4.0	
Minimum Split (s)	20.5	20.5	20.5					20.5	20.5	8.5	20.5	
Total Split (s)		59.0	59.0	0.0	0.0	0.0	0.0	82.0	82.0	39.0	121.0	0.0
Total Split (%)	32.8%	32.8%	32.8%	0.0%	%0.0	0.0%	%0.0	45.6%	45.6%	21.7%	67.2%	%0.0
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0					1.0	10	1.0	1.0	
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	None	None	None					C-Max (C-Max		C-Max	
Act Effct Green (s)		46.0	46.0					87.0	87.0		126.0	
Actuated g/C Ratio		0.26	0.26					0.48	0.48	0.19	0.70	
v/c Ratio		0.89	0.52					0.65	0.69	0.67	0.29	
Control Delay		85.6	12.8					3.9	5.1	999	17.9	
Queue Delay		9.0	0.0					00	0.0	0.0	0.4	
Total Delay		86.4	12.8					6	5.1	86.6	18.2	
SOT		ů.	മ					~(∢	ш	Œ	
Approach Delay		44.4						4			29.8	
Approach LOS		۵						∢			O.	
Intersection Summary												

Cycle Length: 180

Actuated Öycle Length: 180 Offset: 34 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle: 65

Control Type: Actuated-Coordinated Maximum VC Ratio: 0.89 Intersection Signal Delay: 21.1 Intersection Capacity Utilization 99.1% Analysis Period (min) 15.

Intersection LOS; C ICU Level of Service F

Y 1040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Existing PM.sy7
J. Bavos/V. Haskell
Darnell & Associates, Inc.

Existing-PM 2: SR-78 EB On Ramp & Rancho Santa Fe Rd Splits and Phases: 2: SR-78 EB On Ramp & Rancho Santa Fe Rd v os 121 ezabrak serosadoski propertiena karaske paramada Lanes, Volumes, Timings 1/25/2006

040912-Lago De San Marcos Y:040912-Lago De San Marcok (STD)\Analysis\Synchro\01-25-06\Existing PM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

MA societies AM	3: San Marcos Blvd & Rancho Santa Fe Rd
	S
	Timing
2006	s, Volumes,
1/25/	Lane

Existing-AM 3: San Marcos Blvd & Rancho Santa Fe Rd

Spits and Phases: 3: San Marcos Blvd & Rancho Santa Fe Rd

Lanes, Volumes, Timings

1/25/2006

78 m v 2 116 m 116

	1	t	~	\	ļ	√	4	+-	•	٠	-	•
Lane Group	EBL	EBT	EBR	WBI	WRT	WRD GR/W	, E	- F	. 0	õ	- 6	0
Lane Configurations	K	*	R	i i	*			2	1		9	יומא
Total Lost Time (s)	0.4	4	4	4	- 4 2 -	7	= {	11		- (•
Lane Util. Factor	0 97	9	5	700	200	2	5 6				J. 1	0.4
En	9	3	2 0	5	0.00	0.30	0.97		200	1.00	0.95	9.
Eli Diotected	0		000	9	0.885				0.850			0.850
South Florester	0.60			0.850			0.950			0.950		
Sald, Flow (prot)	3433	3539	1583	3433	3522	0	3433	3539	1583	1770	3539	1583
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	.3539	1583	3433	3522	0	3433	3539	1583	1770	1530	1583
Sald. Flow (RTOR)			55		4				121			2 6
Headway Factor	1.00	1.00	1,00	1.00	1 00	1 00	9	5		0	5	5 6
Volume (vph)	285	706	5	421	1033	5 5	13.7	2 4	20.0	3 8	3 5	3 5
Adi. Flow (vph)	310	767	יני	45,8	123	, ,	2 3	2 6	220	8 6	2,0	154
Lane Group Flow (vph)	310	767	7.	45B	1150	3 6	2 7	3 6	0.0	2 5	707	40/
Turn Tyne	5		2 2	3	2	•	<u> </u>		0	, ,		46/
Destacted Disease	5 -	-,	٠ ا	<u>.</u>			ō		pm+ov	Prof	_	pm+ov
Protected Priases	`	4	Ç.	ო	œ		S	2	က	-	9	7
reinnited Phases			4						2			œ
Detector Phases	7	4	2	'n	83		S	2	м		œ	^
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	0,4	0.4	40	. 0
Minimum Split (s)	8.5	20.5	8.5	8.5	20.5		8.5	20.5	80	ď	20.5	מ
Total Split (s)		29.0	13.0	33.0	45.0	0.0	13.0	28.0	33.0	16.0	310	17.0
Total Split (%)		27.4%	12.3%	-	12.5%	%00	12.3%	26.4%	31 1%	15.1%	%6 50	, oc 9
Yellow Time (s) 🗧	3.5	3.5	3.5		3.5	·	, c.	2 5			2 2 2	6. C.
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		10	10	1	-	, -	9 -
-ead/Lag	Lag	Lag	Lag		Lead		2	- P	4	2 6	0	2 5
ead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	YAR) A	, a	2 4
Recall Mode	None	None	None	None	None			C-May	ACC N		, May	2001
Act Effct Green (s)	14.8	29.9	38.9	23.8	38.9			24.2	48.1		27.2	1,61
Actuated g/C Ratio	0.14	0.28	0.37	0.22	0.37		0.08	0.23	0.45		920	6
v/c Ratio	0.65	0.77	60.0	0.59	06.0		0.51	0 62	0.87	0.46	0.81	9 9
Control Delay	50.8	42.2	3.9	24.7	33.6		418	30.0	326		41.9	25.00
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	00	0.0	0.0	0	
Fotal Delay	50.8	42.2	3.9	24.7	33.6		41.8	30.0	32.6	49.7	419	25.6
-08	۵	۵	∢	ن	U		C	C		C	C	, (
Approach Delay		42.7			31.1		1	32.7	,	1	36.6)
Approach LOS		۵		٠	U			C			? =	
Comment of the carbon)			1	

Intersection Summary Cycle Length: 106

Actuated Cycle Length: 106 Offset: 50 (47%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle: 75

Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.90 Intersection Signal Delay: 35.2 Intersection Capacity Unilization 73.6% Analysis Period (min) 15

Intersection LOS: DICU Level of Service D

√f _{0.3} → 34 33 (2.00 × 10.0

040912-Lago De San Marcos Y:040912-Lago De San Ma^tcos (STD)/Analysis/Synchrol01-25-06/Existing AM.sy7 J. Bayos/V Haskell Damell & Associates, Inc.

040912-Lago De San Márcos

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Existing AM.sy7 J. Bavos/V Haskell
Darnell & Associates, Inc.

Existing-PM 3: San Marcos Blvd & Rancho Santa Fe Rd Lanes, Volumes, Timings 1/25/2006

Talles, volumes,	2611111						5	Salt Watcus	2000	* Carical	Taricino Sarita	מש
	1	1	/	>	1	4	•	4-	*	•	-	•
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	F	‡	X _	¥.	±±		1	+	×	*	‡	R
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	90	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00
T.L.			0.850		0.993				0.850			0.850
Fit Protected	0.950			. 056.0			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3514	0	3433	3539	1583	1770	3539	1583
Fit Permitted	0.950	,		0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3514	0	3433	3539	1583	1770	3539	1583
Satd. Flow (RTOR)			73		B				. 88			17
Headway Factor	1.00	1.00	1.00	8	1.00	1.00	1.00	1.00	1,00	1.00	1.00	1.00
Volume (vph)	735	703	74	498	1360	65	124	1069	162	141	538	601
Adj. Flow (vph)	742	710	75	503	1374	99	125	1080	164	142	543	607
Lane Group Flow (vph)	742	710	75	503	1440	0	125	1080	164	142	543	607
Turn Type	Prot		pm+ov	Prot			Prot		Perm	Prot		vo+mq
Protected Phases	7	4	ς,	ი	ထ		3	7		-	9	7
Permitted Phases			4						2			9
Detector Phases	7	4	5	ო	œ		5	2	7	+	9	7
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	20.5	8.5	8.5	20.5		8.5	20.5	20.5	20.5	20.5	8.5
Total Split (s)	37.0	58.9	15.6	46.1	68.0	0.0	15.6	54.5	54.5	20.5	59.4	37.0
Total Split (%)	20.6%	32.7%	8.7%	25.6%	37.8%	%0.0	8.7%	30.3%	30.3%	11.4%	33.0%	20.6%
Yellow Time (s)	3.5	3,5	3.5	3.5	3.5		3.5	3.5	3 5	3,5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	0.1	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max		C-Max	None
Act Effct Green (s)	33.0	65.9	80.9	31.1	64.0		11.0	50.5	50.5	16.5	56.0	89.0
Actuated g/C Ratio	0.18	0.37	0.45	0.17	0.36		90.0	0.28	0 28	0.09	0.31	0.49
v/c Ratio	1.18	0.55	0.10	0.85	1.15		0,60	1.09	0.32	0.88	0.49	0.77
Control Delay	156.8	48.1	9.9	76.0	130.1		91.9	104.0	24.4	112.7	43.9	27.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	156.8	48.1	9.9	76.0	130.1		91.9	104.0	24.4	112.7	43.9	27.6
ros	L	۵	ব;	ш	u.		ц.	ŭ.	C	ш	Ω	ပ
Approach Delay		98.9			116.1			93.3			43.8	
Approach LOS		u.			u.			ц.			۵	
Intersection Summary	٠											

Cycle Length: 180

Adtuated Cycle Length: 180
Offset: 90 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum vic Ratio: 1.18
Intersection Signal Delay: 91.5
Intersection Capacity Utilization 111.3%
ICU Level of Service
Analysis Period (min) 15

Intersection LOS: FICU Level of Service H

040912-Lago De San Marcos Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Existing PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Existing-PM 3: San Marcos Blvd & Rancho Santa Fe Rd 15.5 | Contracting and the contraction of the contr Splits and Phases: 3: San Marcos Blvd & Rancho Santa Fe Rd Lanes, Volumes, Timings 1/25/2006

040912-Lago De San Marcos Y:040912-Lago De San Marchs (STD)\Analysis\Synchro\01-25-08\Existing PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

1/25/2006 Lanes, Volumes, Timings	imings					4: L	Existing-AM 4: Lake San Marcos Dr & Rancho Santa Fe Rd
	>	'√	←	. •	٨	→	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	*	74_	*		24	*	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4	4	
Lane Util. Factor	1.00	1.00	0.95	0.95	90	0.95	
ĭ		0.850	0.989				
Fit Protected	0.950				0.950		
Satd. Flow (prot)	1770	1583	3500	0	1770	3539	
Fit Permitted	0.950				0.950		
Satd. Flow (perm)	1770	. 1583	3500	0	1770	3539	
Satd. Flow (RTOR)		238	10				
Headway Factor	1.0	1.00	1,00	1,00	1.00	1.00	
Volume (vph)	68	224	1007	77	136	1091	
Adj. Flow (vph)	72	238	1071	. 82	145	1161	
Lane Group Flow (vph)	72	238	1153	0	145	1161	
Turn Type		Perm			Prot		,
Protected Phases	æ		2		-	9	
Permitted Phases		æ				1	
Detector Phases	80	œ	2		-	9	
Minimum Initial (s)	4.0	4.0	4.0		0.4	4	
Minimum Split (s)	20 5	20.5	20.5		8.5	20.5	
Total Split (s)	26.2	26.2	56.3	0.0	23.5	79.8	
Total Split (%)		24.7%	53.1%	%0.0		75.3%	
Yellow Time (s)	3.5	3.5	3.5		3.5	3,5	
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	
Lead/Lag			Lead		Lag		-
Lead-Lag Optimize?			Yes		Yes		
Recall Mode	None	None	C-Max		None (C-Max	
Act Effct Green (s)	10.1	10.1	64.4		19.5	87.9	
Actuated g/C Ratio	0.10	0.10	0.61		0.18	0.83	
v/c Ratio	0.43	0.65	0.54		0.44	0.40	
Control Delay	52.1	14.5	13.6		29.2	1.0	
Queue Delay	0.0	0.0	0.0		0.0	0.0	
Total Delay	52.1	14.5	13.6		29.2	1.0	
ros	۵	80	œ		ပ	∢	
Approach Delay	23.2		13.6			4.1	
Approach LOS	ပ		80			∢	
Intersection Summary							

Intersection Summary Cycle Length: 106

Actualed Cycle Length: 106 Offset: 91 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 10.2 Intersection Capacity Utilization 51.6% Analysis Period (min) 15

Intersection LOS; B ICU Level of Service A

Existing-AM 4: Lake San Marcos Dr & Rancho Santa Fe Rd 90 * 90 * 10 Splits and Phases: 4: Lake San Marcos Dr & Rancho Santa Fe Rd Lanes, Volumes, Timings 1/25/2006

040912-Lago De San Marcos Y:040912-Lago De San Marcos (STD)/Analysis/Synchro\01-25-06\Existing AM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

040912-Lago De San Marcos

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Existing AM.sy7 J. Bavos\V Haskell Darnell & Associates, Inc.

Lanes, Volumes, Timings

Existing-PM 4: Lake San Marcos Dr & Rancho Santa Fe Rd

0.0 15.0 69... 0.0% 16.7% 77.2% 3.5 3.5 1.00 978 1019 1019 3539 3539 None C-Max 11.0 75.4 0.12 0.84 4.0 20.5 69.5 1.00 0.950 1770 1.00 136 142 142 0.950 Yes 99.0 42.8 0.95 4.0 8 22.8% 22.8% 60.6% 3.5 3.5 3.5 1.0 1.0 1.0 0.95 3490 20 1.00 1364 1358 1500 20.5 54.5 1.0 Lead 00 11.5 None C-Max 59.6 1583 0.850 1583 Perm 20.5 12.7 0.0 12.7 B 1.00 86 86 170 8 43.2 0.10 43.2 D 26.8 C Lane Group Flow (vph) Satd. Flow (RTOR) Satd. Flow (RTOR) Headway Factor Lane Configurations Total Lost Time (s) Lead-Lag Optimize? Protected Phases Permitted Phases Minimum Initial (s) Total Split (s)
Total Split (%)
Yellow Time (s)
All-Red Time (s) Actuated g/C Ratio Act Effct Green (s) Minimum Split (s) Satd. Flow (prot) Approach Delay Approach LOS ane Util. Factor Detector Phases Adj. Flow (vph) Fit Protected Volume (vph) Control Delay FIt Permitted Queue Delay Lane Group Recall Mode Fotal Delay Lead/Lag um Type v/c Ratio

Cycle Length: 90

ntersection Summary

Actuated Cycle Length: 90

Offset: 19 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle: 70

Control Type: Actualed-Coordinated Maximum Vic Ratio: 0.66 Intersection Signal Delay: 10.1 Intersection Capacity Ultization 61.8% Analysis Period (min) 15

Intersection LOS: B ICU Level of Service B

Y:1040912-Lago De San Marcos (STD)/Analysis\Synchro\01-25-06\Existing PM.sy7 J. Bavos/V Haskell

Darnell & Associates, Inc.

Existing-PM 4: Lake San Marcos Dr & Rancho Santa Fe Rd V of State S L 92 Splits and Phases: 4: Lake San Marcos Dr & Rancho Santa Fe Rd Lanes, Volumes, Timings 1/25/2006

040912-Lago De San Marcos Y:040912-Lago De San Marcos (STD)/Analysis/Synchro\01-25-06\Existing PM.sy7 J. Bavos/V Haskell
Darnell & Associates, Inc.

Existing-AM 1/25/2006

Existing-AM 5: Metrose Dr & Rancho Santa Fe Rd															,			•	Ÿ				-		• •		-										
	•	SBR	K	.0	1.00			1863	2	1863		1.00	0	0	0	Perm		9	9	4.0	20.5	54.0	20.9%	3.5	1.0	Lead	Yes	Max									
	-	SBT	*	4.0	1.00			1863		1863		1.00	926	955	955		9		9	4.0	20.5	54.0		3.5	1.0	Lead	Yes	Max	50.1	0.49	1.05	72.2	0.0	72.2	ıΠ	72.2	ш
	←	NBT	‡	4.0	0.95			3539		3539		1.00	805	830	830		2		2	4.0	20.5	78.0	73.6% 5	3.5	1.0			Мах	74.1	0.72	0.32	6.0	0.0	6.0	٠с	67.8	ш
	•	NBL	•	4.0	1.00		0.950	1770	0.950	1770		1.00	430	443	443	Prot	2		5	4.0	8.5	24.0	22.6%	3.5	.0.	Lag	Yes	None	20.0	0.19	1.28	183.7	0.0	183.7	щ		
	<i>></i>	EBR	*-	4.0	1.00	0.850		1583		1583	361	1.00	411	454	424	Pro	4		4	4.0	20.5	28.0	26.4%	3.5	1.0			None	20.6	0.20	0.70	13.7	0.0	13.7	ထ		
imings	1	EBL		4.0	1.00		0.950	1770	0.950	1770		1.00	273	281	281		4		4	4.0	20.5	28.0	26.4%	3,5	0.			None	20.6	0.20	0.79	55.7	0.0	55.7	ш	30.4	د
Lanes, Volumes, Timings		Lane Group	Lane Configurations	Total Lost Time (s)	Lane Util, Factor	F.	Fit Protected	Satd. Flow (prot)	Fit Permitted	Satd. Flow (perm)	Satd. Flow (RTOR)	Headway Factor	Volume (vph)	Adj. Flow (vph)	Lane Group Flow (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phases	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	ros	Approach Delay	Approach LOS

Intersection Summary

Cycle Length: 106 Actuated Cycle Length: 102.7 Natural Cycle: 110

Control Type: Actuated-Uncoordinated Maximum v/c Ratio: 1.28

Intersection Signal Delay: 60.2 Intersection Capacity Utilization 97.7% Analysis Period (min) 15

Intersection LOS: E ICU Level of Service F

Y:040912-Lago De San Marcos (STD)/Analygis/Synchro\01-25-06\Existing AM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

Existing-AM 5: Melrose Dr & Rancho Santa Fe Rd A state of the sta Splits and Phases: 5: Melrose Dr & Rancho Santa Fe Rd 187 Lanes, Volumes, Timings 1/25/2006

040912-Lago De San Marcos Y:040912-Lago De San Marcos (STD)/Analysis/Synchro\01-25-06\Existing AM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

	Existing-PM	5: Melrose Dr & Rancho Santa Fe Rd
1/25/2006	3 :	Lanes, Volumes, Timings

Existing-PM 5: Melrose Dr & Rancho Santa Fe Rd

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Splits and Phases: 5: Melrose Dr & Rancho Santa Fe Rd

1/25/2006 Lanes, Volumes, Timings

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I	*	SBR		4	1.00	0.850		1583		1583	112	100	207	213	213	Perm		•		4.0	20	95.0	52.8%	3.5	0.1	Lead	Yes	Max	91.3	0.56	0.23	10.0	00	10.0	∢				
ļ	_	SBT	4	- 0.	00.			1863	;	1863	,	1.00	819	844	844		9		9	0.4	20.5	95.0		3.5	0.	pea.	Yes.	Max	91.3	95.0	31	38.4	0.0	4	Ω	ø,	ပ		
	·	S			-							- -	ω	00	α						~		52.8%	(*)	_	Ë	>	Σ	6	ö	0.81	38	0	38.4		32.6			
ĺ	-	NBT	*	0	0.95			3539		3539		9.	972	1002	1002		7		2	4.0	20.5	127.0	%9.02	3.5	1.0			Max	123.3	0.75	38	8.2	0.0	8.2	4	26.3	ပ		
		۳,	*	0.4	Ö.		Q					0	6		·	Ħ	5		ĸ					2	0	6	va .					₩		₹	.,	•			
	4	NB		4	1.0		0.950	1770	0.950	1770		1.00	259	267	267	ď				4.0	æ	32.0	17.8%	3.5	0	Lag	∠es	None	28.1	0.17	0.88	94.4	0.0	94.4	_				
l	<i>></i>	EBR	*	4.0	1.00	0.850		1583		,1583	346	8	483	498	498	Prot	4		4	4.0	20.5	53.0	29.4%	3.5	0.7			Vone	2.2	0.20	84	32.3	0.0	32.3	ပ				
			_	_		ö	_									ц,												-											
	1	EB		4.0	9		0.950	1770	0.950	1770		9	266	274	274		4		4	4.0	20.5	53.0	29.4%	3.5	10			None	32.2	0.20	0.79	78.2	0.0	78.2	ш.	48.6			
							Ŭ		_						Ē								Š					_			•							_	i
			ions	(s)	Ĺ					Ē.	(K)	_			-ane Group Flow (vph)		S	S	,,	(S)	·						ize?		(S	9								ntersection Summan	0
			gura	Time	acto		g	(prol	Ę.	(per	(RT	acto	ê	Ę	Ę		hase	hase	ase	itial	S) Hid	(s	<u>@</u>	(5)	e (s)		pţim	m	een (C Ra		ž	_			elay	S	SLIM	h: 18
		Sou	Juo	ost,	Ē		tecte	₩Q!	mitte	<u>\o</u>	wol	ayF	dv)	₹	roup	ype	ed P	ed P	g i	드	S.	piit (置	Ē	Ë	9	9g O	Mode	Ö	, 6 g	0	Dei	Sela Dela	elay		6	당	tion	engt
		Lane Group	Lane Configurations	Fotal Lost Time (s)	ane Util. Factor	_	Flt Protected	Satd. Flow (prot)	FIt Permitted	Satd. Flow (perm)	Satd. Flow (RTOR)	Headway Factor	Volume (vph)	4dj. Flow (vph)	ē.	ſum Type	Protected Phases	Permitted Phases	Detector Phases	Minimum Initial (s)	Minimum Split (s)	fotal Split (s)	otal Split (%)	Yellow Time (s)	All-Red Time (s)	.ead/Lag	ead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	otal Delay	ທ	Approach Delay	Approach LOS	ersec	Cycle Length: 180
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						•																																	

Cycle Length: 180
Actuated Cycle Length: 163.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum vic Ratio: 0.88
Intersection Signal Delay: 34.0
Intersection Capacity Utilization 82.2%
Analysis Period (min) 15

Intersection LOS: C ICU Level of Service E

Y:040912-Lago De San Marcos (STD))Analysis\Synchro\01-25-06\Existing PM.sy7

J. Bavos/V Haskell

Darnell & Associates, Inc.

040912-Lago De San Marcos Y:040912-Lago De San Malcos (STD)/Analysis/Synchro\01-25-06/Existing PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Existing-AM 6: San Marcos Blvd & Las Posas Rd 1/25/2006 Lanes, Volumes, Timings

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	1	1	/	>	ţ	4	•	-	•	ታ.	-	7
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	ë N	NBA	NBR	S	SBT	aav
Lane Configurations	K -	+		*	*	R	*	*	R	1	*	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	0	4.0	4	4.0	4 0	4.0	7	- 4
Lane Util. Factor	1.8	0.95	0.95	1.00	0.95	1.00	9.0	100	00.1	1 00	1 00	. 6
Fit		0.993				0.850			0.850			0.850
Fit Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3514	0	1770	3539	1583	1770	1863	1583	1770	1863	1583
Fit Permitted	0.950			0.950			0.731			0 734		2
Satd. Flow (perm)	1770	3514	0	1770	3539	1583	1362	1863	1583	1367	1863	1583
Satd. Flow (RTOR)		σ				111			52			43
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.0	1,00	1,00	1.00	100	100	1 5
Votume (vph)	250	1149	29	99	1070	107	44	35	50	56	38	412
Adj. Flow (vph)	260	1197	61	69	1115	=======================================	46	36	52	58	40	429
Lane Group Flow (vph)	. 260	1258	0	69	1115	111	46	36	52	58	4	429
Turn Type	Prot			Prot		Perm	Perm		vo+ma	Perm		vo+ma
Protected Phases	5	7		-	9			œ	_		4	4
Permitted Phases						9	60		80	4		4
Detector Phases	2	7		-	G	9	8	œ	•	4	4	· v
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4	4.0
Minimum Split (s)	8.5	20.5		8.5	20.5	20.5	20.5	20.5	8.5	20.5	20.5	8
Total Split (s)		9.69	0.0	14.9	52.8	52.8	21.5	21.5	14.9	21.5	21.5	317
Total Split (%)		65.7%	%0.0		49.8%	49.8%	20.3%	20.3%	14.1%	20.3%	20.3%	29.9%
Yellow Time (s)	3.5	3.5		3,5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	35
All-Red Time (s)	0.	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	10	10
Lead/Lag	Lag	Lag		Lead	Lead	Lead			Lead			Lag
Lead-Lag Optimize?		Yes		Yes	Yes	Yes			Yes			≺es
Recall Mode		C-Max		_	-	C-Max	Max	Max	None	Max	Max	None
Act Effct Green (s)	27.7	69.3		9.3	48.8	48.8	17.5	17.5	30.8	17.5	17.5	49.2
Actuated g/C Ratio	0.26	0.65		0.09	0.46	0.46	0.17	0.17	0.29	0.17	0.17	0.46
v/c Ratio	0.56	0.55		0.45	0.68	0.14	0.20	0.12	0,10	0.26	0.13	0.57
Control Delay	30.7	7.3		41.0	22.9	5.3	41.0	38.9	8.1	42.1	39.1	22.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	00	0.0	0.0
Total Delay	30.7	7.3		41.0	22,9	5.3	41.0	38.9	6.1	42.1	39.1	22.0
SOT	ပ	4		۵	ပ	<	۵	۵	۷	۵	۵	ပ
Approach Delay		11.3			22.4			27.7			25.5	
Approach LOS		œ			Ö			O.			U	
Contraction of the contract of the												

Intersection Summary Cycle Length: 106

Actualed Cycle Length: 106
Offset: 100 (94%), Referenced to phase 2.EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actualed-Coordinated
Maximum vic Ratio: 0.68
Intersection Signal Delay: 18.2
Intersection Capacity Utilization 68.4%
Analysis Period (min) 15

Intersection LOS: B ICU Level of Service C

1/25/2006

Existing-AM 6: San Marcos Blvd & Las Posas Rd of IV as 17 Page 17 Pa Splits and Phases: 6: San Marcos Blvd & Las Posas Rd Lanes, Volumes, Timings

Y:040912-Lago De San Martos (STD)\Analysis\Synchro\01-25-06\Existing AM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

040912-Lago De San Marcos

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Existing AM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Existing-PM	6: San Marcos Blvd & Las Posas Rd	
1/25/2006	Lanes, Volumes, Timings	

1/25/2006

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	١	†	/	>	ļ	1	€	4 -	•	٠	-	*
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	~	↑		1	+	×	*	+	R.		*	~
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4	4.0	4.0	4	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FA		0.995				0.850			0.850			0.850
Fit Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3522	0	1770	3539	1583	1770	1863	1583	1770	1863	1583
Fit Permitted	0.950			0.950			0.734			0.728		
Satd. Flow (perm)	1770	3522	0	1770	3539	1583	1367	1863	1583	1356	1863	1583
Satd. Flow (RTOR)		4				4			84			45
Headway Factor	1.00	9	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Jolume (vph)	288	1362	48	64	1067	54	41	4	45	57	33	256
4dj. Flow (vph)		1465	52	69	1147	58	44	4	48	61	35	275
ane Group Flow (vph)		1517	0	69	1147	58	44	44	48	61	35	275
Turn Type	Prot			Prot		Perm	Perm		pm+ov	Perm		pm+ov
Protected Phases	5	2		-	9			ω	-		4	5
Permitted Phases						9	80		8	4		4
Detector Phases	ς,	7		-	9	9	æ	80	-	4	4	2
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4:0	4.0	4.0
Vinmum Split (s)	8.5	20.5		8.5	20.5	20.5	20.5	20.5	8.5	20.5	20.5	8.5
Fotal Split (s)	59.3	122.6	0.0	27.6	90.9	90.9	29.8	29.8	27.6	29.8	29.8	59.3
rotal Split (%)	32.9%	68.1%	%0.0	15.3%	50.5%	50.5%	16.6%	16.6%	15.3%	16.6%	16.6%	32.9%
rellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	0.1		1.0	1.0	1.0	10	1.0	1.0	1.0	10	1.0
.ead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			Lead
_ead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			Yes,
Recall Mode	None	C-Max		None	C-Max	C-Max	Max	Max	None	Max	Max	None
Act Effct Green (s)	42.5	129.6		12.6	99.7	99.7	25.8	25.8	42.4	25.8	25.8	72.3
Actuated g/C Ratio	0.24	0.72		0.07	0.55	0.55	0.14	0.14	0.24	0.14	0.14	0.40
//c Ratio	0.74	09.0		0.56	0.59	90.0	0.22	0.16	0.12	0.31	0.13	0.41
Control Delay	58.7	13.9		93.5	17.1	3.3	71.7	69.5	12.4	74.2	68.9	32.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	00	0.0	0.0	0.0	0.0	0.0
Fotal Delay	58.7	13.9		93.5	17.1	3.3	71.7	69.5	12,4	74.2	68.9	32.6
TOS	ш	ഥ		щ	œ	4	ш	w	Ð	ш	ш	ပ
Approach Delay		21.5			20.6			50.1			42.9	
Approach LOS		ပ			O			۵			۵	
Intersection Summary												

Cycle Length: 180

Actuated Cycle Length: 180 Offset: 157 (87%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 70

Control Type: Actuated-Coordinated Maximum V6 Ratio: 0.74 intersection Signal Delay: 24.5 intersection Capacity Utilization 65.3% Analysis Period (min) 15

Intersection LOS: C ICU Level of Service C

Y:040912-Lago De San Marcos (STD)/Analysis/Synchrol01-25-06/Existing PM.sy7 J. Bavos/V Haskell
Darnell & Associates, Inc.

Existing-PM 6: San Marcos Blvd & Las Posas Rd Hardware the second that the second the second that the second Splits and Phases: 6: San Marcos Blvd & Las Posas Rd Lanes, Volumes, Timings

040912-Lago De San Marcos Y:040912-Lago De San Ma^tcos (STD)/Analysis/Synchro\01-25-06\Existing PM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

040912-Lago De San Marcos

Me-poission-AM	7: San Marcos Blvd & SR-78 EB Ramps	
1/25/2006	Lanes, Volumes, Timings	

			•	•			_		Ĺ	۶	→	*
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NB	NBT	NBR	ď	F R C	a a
Lane Configurations		‡	R.	1	+++					1	4	*
iotal Lost Time (s)	0.4	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4	4.0
Lane Util. Factor	1.00	0.91	0.88	0.97	0.91	1.00	1.00	1.00	1.00	0.95	0.95	1.00
E. i			0.850									0.850
Fit Protected				0.950						0.950	0.950	
Satd. Flow (prot)	0	5085	2787	3433	5085	0	0	0	0	1681		1583
Fit Permitted		•		0.950						0.950	0	
Sald. Flow (perm)	0	5085	2787	3433	5085	0	0	0	0	1681		1583
Satd. Flow (RTOR)			929									4
Headway Factor	1.00	1.00	1.00	1.00	00.	1,00	1.00	1.00	1.00	1 00	1 00	100
Volume (vph)	0	764	892	177	1853	0	0	a	C	252	C	421
Adj Flow (vph)	0	796	929	184	1930	0		a	C	262	· c	439
Lane Group Flow (vph)	0	796	929	184	1930	0	0	0	0	131	13.	439
Tum Type			Perm	Prot						Pace	;	Page
Protected Phases		7		-	9					,	٧	3
Permitted Phases			5							*	r	*
Detector Phases		7	2		9					- 4	٧	7
Minimum Initial (s)		4.0	4.0	4.0	4.0					. 04	4	7
Minimum Split (s)		20.5	20.5	8.5	20.5					20.5	20.00	2 5
Total Split (s)	0.0	40.9	40.9	14.8	55.7	0 0	0	C	0	200	5.00	י ני פי ני
Total Split (%)			38.6%		52.5%	%00	200	200	2 6	17 50%	47.5%	77 70
Yellow Time (s)			3.5		3.5		5	5	5) () (9 u	9 0
All-Red Time (s)		1.0	1.0	10	100					9 6) -	2 -
Lead/Lag		Lead	Lead	Lag						<u>.</u>	2	2
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode	0		C-Max		C-Max					Wax	Ϋ́	Ϋ́
Act Effct Green (s)		36.9	36.9	10.8	51.7					46.3	46.3	46.3
Actuated g/C Ratio		0.35	0.35	0.10	0.49					0.44	0.44	0.44
v/c Ratio		0.45	0.59	0.53	0.78					0.18	0.18	0.63
Control Delay		24.4	9.0	41.7	18.4					6	191	28 1
Queu 3 Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		24.4	0.6	41.7	18.4					19.1	19.1	28.1
.os		ပ	∢	۵	മ					മ	00	U
Approach Delay		16,1			20.4						24.7	ı
Approach LOS		œ			O						ပ	
ntersection Summary												

Cycle Length: 106
Actuated Cycle Length: 106
Offsett 45 (42%). Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 96
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78

Intersection Signal Delay. 19.4 Intersection Capacity Utilization 68.5% Analysis Period (min) 15

Intersection LOS: B ICU Level of Service C

040912-Lago De San Marcos Y:040912-Lago De San Marcos (STD)/Analysis/Synchro\01-25-06\Existing AM.sy7 J. Bavos/V Haskell
Dameil & Associates, Inc.

040912-Lago De San Marcos

Y:040912-Lago De San Marces (STD)/Analysis/Synchro\01-25-06\Existing AM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

Existing-AM 7. San Marcos Blvd & SR-78 EB Ramps Splits and Phases: 7: San Marcos Blvd & SR-78 EB Ramps 30 Lanes, Volumes, Timings 1/25/2006

Existing-PM 7: San Marcos Blvd & SR-78 EB Ramps 1/25/2006 Lanes, Volumes, Timings

	4	1	1	•	↓	1	1	+	1	1	-	-	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		444		1 m	444					ı	4.7		
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4	
Lane Util. Factor	9.6	0.91	0.88	0.97	0.91	1.00	1.00	1.00	9.	0.95	0.95	1.00	
Ę	٠		0.850									0.850	
Fit Protected				0.950						0.950	0.950		
Satd. Flow (prot)	0	5085	2787	3433	5085	0	0	0	0	1681		1583	
Fit Permitted	•			0.950						0.950	0.950		
Sald. Flow (perm)	0	5085	2787	3433	5085	0	0	0	0	1681		1583	
Satd. Flow (RTOR)			711									20	
Headway Factor	1.00	1.00	1.00	1.00	1.8	1.00	1.00	1.00	1.00	1.00	1.00	00.	
Volume (vph)	0	1213	1005	317	1348	0	0	0	0	366	0	533	
Adj Flow (vph)	0	1251	1036	327	1390	0	0	0	0	377	0	549	
Lane Group Flow (vph)	0	1251	1036	327	1390	0	0	0	0	£	188	549	
Turn Type			Perm	Pro						Perm		Perm	
Protected Phases		7		-	9						4		
Permitted Phases			2							4		4	
Detector Phases		2	2	-	9					4	4	4	
Minimum Initial (s)		4.0	4.0	4.0	4.0					4 0	4.0	4	
Minimum Sptit (s)		20.5	20.5	8.5	20.5					20.5	20.5	20.5	
Total Split (s)	0.0	58.0	58.0	31.0	89.0	0.0	0.0	0.0	0.0	91.0	910	910	
Total Split (%)	0.0%	32.2%	32.2%	17.2%	49.4%	%0.0	%0.0	0.0%	0.0%			50.6%	
Yellow Time (s)		3.5	3.5	3.5	3.5					3.5	3.5	35	
All-Red Time (s)		1.0	1.0	10	1.0					0.	1,0	10	
Lead/Lag		Lag	Lag	Lead									
Lead-Lag Optimize?		Yes	Yes	Yes									
Recall Mode	•		C-Max	None	C-Max					Max	Max	Max	
Act Effct Green (s)		58.6	58.6	22.4	85.0					87.0	870	87.0	
Actuated g/C Ratio		0.33	0.33	0.12	0.47					0.48	0.48	0.48	
v/c Ratio		0.76	0.75	0.76	0.58					0.23	0.23	0.71	
Control Delay		45.1	8.9	79.7	26.0					28.0	28 0	41.2	
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0	
Total Delay		45.1	8	79.7	26.0					28.0	28 0	41.2	
ros		Δ,	∢	ш	ပ					O	U	۵	
Approach Delay		28.7			36.2						35.9		
Approach LOS		ပ			۵						٥		
Intersection Summary													
												l	

Cycle Length: 180 Actualed Cycle Length: 180 Offset: 78 (43%), Referenced to phase 2.EBT and 6:WBT, Start of Green Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum vic Ratio; 0.76 Intersection Signal Delay: 32.7 Intersection Capacity Utilization 65.7%. Analysis Period (min) 15

Intersection LOS: C ICU Level of Service C

040912-Lago De San Marcos Y:040912-Lago De San Marcos (STD)/Analysis\Synchro\01-25-06\Existing PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Existing-PM 7: San Marcos Blvd & SR-78 EB Ramps Splits and Phases: 7: San Marcos Blvd & SR-78 EB Ramps Barrar I was to see the see that the see tha Lanes, Volumes, Timings 1/25/2006

Y:1040912-Lago De San Marcos (STD)/Analysis/Synchrol01-25-06/Existing PM.sy7

J. Bavos/V Haskell
Damell & Associates, Inc.

1/25/2006	Existing-AM
Laires, volumes, imings	8: San Marcos Blvd & SR-78 WB Ramps

Existing-AM 8: San Marcos Blvd & SR-78 WB Ramps

Splits and Phases: 8: San Marcos Blvd & SR-78 WB Ramps

Lanes, Volumes, Timings

1/25/2006

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	1	†	<i>></i>	/	1	√	•	+	*	۶	-+	7
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	a.	THS	C. C.
Lane Configurations	<u>*</u>	+	R .		***	R	K	1) JE	5	K
Total Lost Time (s)	4.0	4.0	4.0	4.0	4	4.0	4	- 4	4	4	4.0	- 7
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	100	0.97		9 0	2 2	2 6	2 8
£			0.850			0.850		_		3	3	000
Fit Protected	0.950						0.950			0 050		5
Satd. Flow (prot)	3433	3539	1583	0	5085	1583	3433	3479	c	1770	c	7070
Fit Permitted	0.950						0.950	5		0.00	>	10.17
Sald Flow (perm)	3433	3539	1583	0	5085	1583	3433	3479	_	1770	c	2787
Satd. Flow (RTOR)			208			109	1		•	2)	7077
Headway Factor	1.00	1.00	1.00	1.8	100	100	1 00	5 5	1.00	1 00	5	2 6
Volume (vph)	398	466	183	0	745	103	1072	303	3 6	2 0	3 0	2 6
Adj. Flow (vph)	452	530	208	0	847	117	1218	447	7 0	9 6	0 0	200
Lane Group Flow (vph)	452	530	208	0	847	117	1218	506	3 C	<u> </u>		578
Turn Type	Prot		Free			- AU-	ď			2 6	,	5
Protected Phases	s	2			· cc		5 ~	α		5 ^		֓֞֞֞֞֞֞֞֞֓֓֓֓֓֓֓֓֓֓֓֟֓֓֓֓֓֟֓֓֓֟֓֓֓֟֓֓֓֓֟֓֓֓֓֡֓֡֓֡֓֡֓֓֡֓
Permitted Phases			Free		,	- u)	•		-		n
Detector Phases	ď	2			Œ	7	,	a		٢		L
Minimum Initial (s)	0.4	4			4	4	4	9 0		۰ .		0 0
Minimum Split (s)	8.5	20.5			20.5	ψ		, ,		i o		7 0
Total Split (s)	30.3	57.0	0	0	28.7	9 4	9 6	20.0	•	9 6	Ċ	0 0
Total Solit (%)		53 R%	780		70.70	10.0		32.4	0.0	9.0		30.3
Yellow Time (s)		2 6	2		57.67	6 6		30.5%	%0.0	15.7%	0.0%	28.6%
All Ded Time (c)	, ,	, ,			7	3.5	3.5	5		3.5		3.5
מייווים (א) בייוים	2 9				0	0.	1.0	0,1		0.		1.0
ceautrag	, E				ead	Lead		Lag		Lead		, Lag
ceau-trait Opininze ?		:			Yes	Yes		Yes		Yes		Yes
Recall Mode	_	C-Max		0	C-Max	None	None	Max		None		None
Act Effet Green (s)	26.3	53.0	106.0		22.7	33.5	45.0	30.2		10.8		26.3
Actuated g/C Ratio	0.25	0.50	1,00		0.21	0.32	0.42	0.28		0.10		0.25
//c Ratio	0.53	0.30	0.13		0.78	0.20	0.84	0.51		0.55		0.81
Control Delay	22.7	7.4	0.5		45.0	3.7	33.5	33.4		56.7		45.8
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0		0.0
Fotal Delay	22.7	7.4	0.2		45.0	3.7	33.5	33.4		56.7		45.8
SO	ပ	∢	4		۵	4	ن	O		ш		C
Approach Delay		12.0			40.0			33,5				1
Approach LOS		œ			۵			O				
ntersection Summary												

Intersection Summary Cycle Length: 106

Actuated Cycle Lenyth: 108
Offset: 52 (49%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum vic Ratio: 0.84
Intersection Signal Delay: 31.3
Intersection Capacity Utilization 72.7%
IGU Level of Service
Analysis Period (min) 15

Intersection LOS; C ICU Level of Service C

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Existing AM.sy7

J. Bavos/V Haskell

Darnell & Associates, Inc.

040912-Lago De San Marcos Y:040912-Lago De San Marcés (STD)/Analysis/Synchro\01-25-06\Existing AM.sy7 J. Bavos/V Haskell
Damell & Associates, Inc.

Existing-PM	8: San Marcos Blvd & SR-78 WB Ramps
1/25/2006	Lanes, Volumes, Timings

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*	SBR	R.	0.4	0.88	0.850		2787		2787	111	1.00	497	518	518	Over	S		ຸທ	4,0	8.5	20.0	27.8%	3.5	1.0	Lag	Yes	None	46.0	0.26	0.65	50.8	0.0	50.8	۵		
-	SBT		4.0	1.00			0		0		1.00	0	0	, 0								%0.0														
٠	SBL	*	4.0	1.00		0.950	1770	0.950	1770		1,00	165	172	172	Prot	7		7	4.0	8.5	39.8	22.1%	3.5	10	Lag	Yes	None	22.6	0.13	0.77	98.1	0.0	98.1	ш.		
•	NBR		4.0	0.95			0		0		1.00	65	68	0							0.0	%0.0														
←	NBT	41	4.0	0.95	0.972		3440		3440	14	1.00	288	300	368		00		œ	4.0	20.5	43.1	23.9%	3.5	1.0	Lead	Yes	Max	39.1	0.22	0.49	61.7	0.0	61.7	W.	54.0	Ω
•	NBL	¥.	4	0.97		0.950	3433	0.950	3433		1.00	797	830	830	Prot	3		n	4.0	8.5	82.9	46.1%	3.5	1.0			None	65.7	0.36	99.0	50.3	0.3	50.6	۵		
4	WBR	P .	4.0	1.00	0.850		1583		1583	76	1.00	73	76	76	pm+ov	7	9	7	4 0	8.5	39.8	22.1%	3.5	1.0	Lag	Yes	None	82.9	0.46	0.10	5.2	0.0	5.2	∢		
ţ	WBT	***	4.0	0.91			5085		5085		1.00	686	715	715		9		9	4.0	20.5	47.1	26.2%	3.5	1.0	Lead	Yes	C-Max	56.3	0.31	0.45	51.4	0.0	51.4	۵	46.9	۵
>	WBL		4.0	1.00			0		0		1.00	0	0	0							0.0															
1	EBR	R .	4.0	100	0.850		1583		1583	95	1.00	222	231	231	Free		Free				0.0	0.0%						180.0	1.00	0.15	0.5	0.0	0.2	∢.		
1	EBT	4	4.0	0.95			3539	,	3539		1.00	1004	1046	1046		7		7	4.0	20.5	97.1	53.9%	3.5	1.0			C-Max	106.3	0.59	0.50	κί	0.0	5.1	∢	10.4	œ
4	EBL	F	4.0	0.97		0.950	3433	0.950	3433		1.00	418	435	435	Prot	S		S	0.4	8.5			3.5		Lag				0.26			0.0		ပ		-
	Lane Group	Lane Configurations	Total Lost Time (s)	Lane Util. Factor	TH.	Fit Protected	Satd. Flow (prot)	Fit Permitted	Satd. Flow (perm)	Sald. Flow (RTOR)	Headway Factor	Volume (vph)	Adj. Flow (vph)	Lane Group Flow (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phases	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lead/Lag	Lead Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Actuated Cycle Length: 180
Offset: 86 (48%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycler 75
Control Type: Actuated-Coordinated
Maxmrum vic Ratico 0.77
Intersection Signat Delay: 37.1
Intersection Capacity Utilization 63.4%
Intersection Capacity Utilization 63.4%
Analysis Period (min) 15

Intersection LOS: D ICU Level of Service B

040912-Lago De San Marcos Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Existing PM.sy7 J. BavosV Haskell Darnell & Associates, Inc.

Existing-PM 8: San Marcos Blvd & SR-78 WB Ramps TALENDA MARCHANIA DE LA CONTRACTOR MARCHANIA DE LA CONTRACTOR DE LA CONTRA 1 0.3 11.00 for all the state of the state Splits and Phases: 8: San Marcos Blvd & SR-78 WB Ramps Lanes, Volumes, Timings 1/25/2006

040912-Lago De San Marcos Y:040912-Lago De San Mardos (STD)\Analysis\Synchro\01-25-06\Existing PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

	*	>	—	*	1	4			
Movement	EBL	EBT	WBT	WBR	SBL	SBR			
Lane Configurations Sign Control Grade		∢↑ Free 0%	∜î Free 0%		Stop 0%				
Volume (veh/h)	14	207	241	0	1	39			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91			
Hourly flow rate (vph) Pedestrians	15	227	265	0	1	43			
Lane Width (ft) Walking Speed (ft/s)									
Percent Blockage Right turn flare (veh)							e.		· .
Median type Median storage veh)					None				
Upstream signal (ft) pX, platoon unblocked		418		•				*	
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	265 0 0				409	132	•		
vCu, unblocked vol	265				409	132		•	
tC, single (s) tC, 2 stage (s)	4.1 3.1				6.8	6.9			
tF(s)	2.2				3.5	3.3			
p0 queue free % cM capacity (veh/h)	98 992	•			100 561	95 892	,		٠
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1		· .		
Volume Total	91	152	177	88	44				
Volume Left Volume Right	. 15	0	0	0	. 1				
cSH	0 992	0 1700 -	. 1700	0 1700	43 879				
Volume to Capacity	0.02	0.09	0.10	0.05	0.05				
Queue Length 95th (ft)	1	0	0	0	4				
Control Delay (s)	1.6	0.0	0.0	0.0	9.3				
Lane LOS	Α				Α				
Approach Delay (s) Approach LOS	0.6		0.0		9.3 A				
Intersection Summary									
Average Delay Intersection Capacity Uti Analysis Period (min)	ilization		1.0 26.1% 15	lC	CU Leve	of Service	ce	А	

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Y:\040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Existing AM.sy7

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	≯		←	*	1	4	-		•	
Movement	EBL	EBT	WBT	WBR	SBL	SBR		÷		
Lane Configurations		_41			**	· · · · · · · · · · · · · · · · · · ·				
Sign Control Grade		Free			Stop					
Volume (veh/h)	28	0% 253	0% 140	2	0%	0				
Peak Hour Factor	0.93	0.93	0.93	2 0.93	1 0.93	9				
Hourly flow rate (vph)	30	272	151	0.93	0.93	0.93 10				
Pedestrians	50	212	101	2	,	10				
Lane Width (ft)										
Walking Speed (ft/s)										
Percent Blockage										
Right turn flare (veh)						*				
Median type					None					
Median storage veh)					•					
Upstream signal (ft)		417								· ·
pX, platoon unblocked								4.		· .
vC, conflicting volume	153				348	76				
vC1, stage 1 conf vol	0									
vC2, stage 2 conf vol	0									
vCu, unblocked vol	153				348	76				
tC, single (s)	4.1				6.8	6.9				
tC, 2 stage (s) tF (s)	3.1 2.2				2.5	2.2				
p0 queue free %	97			•	3.5 100	3.3 99			•	
cM capacity (veh/h)	1036	-			605	969 969				
		ED.0	\4/D_4	14/0.0		909				
Direction, Lane # Volume Total	EB 1	EB 2 181	WB 1	WB 2	SB 1					
Volume Left	30	. 0	0	52 0	-+1 1					
Volume Right	0	. 0	0	-2.						
cSH	1036	1700	1700	1700	914			•		
Volume to Capacity	0.03	0.11	0.06	0.03	0.01					
Queue Length 95th (ft)	2	0	0	0	1					
Control Delay (s)	2.3	0.0	0.0	0.0	9.0					
Lane LOS	Α				A					
Approach Delay (s)	0.9		0.0		9.0					
Approach LOS					Α					
Intersection Summary										
Average Delay			0.8							
Intersection Capacity Uti	ilization		25.1%	10	CU Level	of Servi	ce	Α		
Analysis Period (min)			15							

040912-Lago De San Marcos

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:	*		4	†	 	4			
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations Sign Control Grade Volume (veh/h) Peak Hour Factor Hourly flow rate (vph) Pedestrians	Stop 0% 157 0.93 169	50 0.93 54	37 0.93 40	Free 0% 46 0.93 49	5 Free 0% 81 0.93 87	182 0.93 196			
Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type Median storage veh)	None								
Upstream signal (ft) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	314	185	283						→ .
vCu, unblocked vol tC, single (s) tC, 2 stage (s)	314 6.4	185 6.2	283 4.1						
tF (s) p0 queue free % cM capacity (veh/h)	3.5 74 658	3.3 94 857	2.2 97 1280						
Direction, Lane #	EB 1	EB 2	NB 1	SB 1					
Volume Total. Volume Left Volume Right cSH Volume to Capacity Queue Length 95th (ft) Control Delay (s) Lane LOS Approach Delay (s) Approach LOS	169 169 0 658 0.26 25 12.4 B 11.7	54 0 54 857 0.06 5 9.5 A	89 40 0 1280 0.03 2 3.7 A 3.7	283 0 196 1700 0.17 0 0.0					
Intersection Summary Average Delay Intersection Capacity Util Analysis Period (min)	lization	3	4.9 38.6% 15	IC	U Level	of Serv	rice	A	

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040912-Lago De San Marcos

	*	•	4	†	↓	4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR			<u></u>		
Lane Configurations	Ť	7°		_ '♣1	_ î						
Sign Control	Stop			Free	Free						
Grade	0%			0%	0%	404					
Volumė (veh/h)	183	49	46	62	59	101					
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89					
Hourly flow rate (vph)	206	55	52	70	66	113	*				
Pedestrians											
Lane Width (ft)				•							•
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type	None										
Median storage veh)											
Upstream signal (ft)									4.		
pX, platoon unblocked											 •
vC, conflicting volume	296	123	180		C ₂						
vC1, stage 1 conf vol		•									
vC2, stage 2 conf vol			400								
vCu, unblocked vol	296	123	180								
tC, single (s)	6.4	6.2	4.1								
tC, 2 stage (s)	۰	2.2	2.2	-			*		•		
tF (s)	3.5	3.3	2.2								
p0 queue free %	69	94	96					-			
cM capacity (veh/h)	669	928	1396								
Direction, Lane #	EB 1	EB 2	NB 1	SB 1							
Volume Total	206	55	121	180							•
Volume Left	206	0	52	0			,			•	
Volume Right	0	55	0	113					•		
cSH	669	928	1396	1700							
Volume to Capacity	0.31	0.06	0.04	0.11							
Queue Length 95th (ft)	33	5	3	0							
Control Delay (s)	12.7	9.1	3.4	0.0							
Lane LOS	В	Α	Α								
Approach Delay (s)	12.0		3.4	0.0						-	
Approach LOS	В									•	
Intersection Summary											
Average Delay			6.3							_	
Intersection Capacity U	tilization		35.2%	1	CU Lev	el of Se	ervice			A	
Analysis Period (min)			15								

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10: Lake San Marcos Dr & San Marino Dr

	→	7	1	†	↓	4			
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	75	7*		4	1 >				
Sign Control	Stop			Stop	Stop				
Volume (vph)	157	50	37	46	. 81	182	•		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93			
Hourly flow rate (vph)	169	54	40	4 9	87	196			
Direction, Lane #	EB 1	EB 2	NB 1	SB 1					
Volume Total (vph)	169	54	89	283					
Volume Left (vph)	169	0	40	0					
Volume Right (vph)	0	54	0	196					
Hadj (s)	0.53	-0.67	0.12	-0.38					
Departure Headway (s)	5.9	4.7	5.0	4.3					
Degree Utilization, x	0.28	0.07	0.12	0.33					
Capacity (veh/h)	579	721	683	806					
Control Delay (s)	9.9	6.8	8.7	9.4			٠.		 '.
Approach Delay (s)	9.2		8.7	9.4					
Approach LOS	Α		Α	Α					
Intersection Summary									
Delay			9.2						
HCM Level of Service			• А						
Intersection Capacity Util	ization	. ;	38.6%	IC	U Leve	l of Servi	ce	Α	
Analysis Period (min)			15						
, ,									

Y:\040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\AWSC at San Marino\Existing AM-AWSC.sy7

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040912-Lago De San Marcos

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≯ .	*	4	1	1	4								
EBL	EBR	NBL	NBT	SBT	SBR								
75	7*		र्स	1>									
Stop			Stop	Stop						-			
183	49	46	62	59	101								
0.89	0.89	0.89	0.89	0.89	0.89	•							
206	55	52	70	66	113								
EB 1	EB 2	NB 1	SB 1						,				
206	55	121	180										,
206	0	52	0										
0	55	0	113	•									
0.53	-0.67	0.12	-0.34										
5.8	4.6	5.0	4.4										
0.33	0.07	0.17	0.22										
597	750	687	765										
10.3	6.7	8.9	8.7					4.				_	
9.6		8.9	8.7									•	
Α		Α	Α										
		9.2											
		Α											
ization		35.2%	10	CU Leve	el of Ser	vice			Α				
		15											
	Stop 183 0.89 206 EB 1 206 206 0.53 5.8 0.33 597 10.3 9.6	Stop 183	Stop 183	Stop 183	Stop Stop Stop Stop Stop 183 49 46 62 59 0.89 0.89 0.89 0.89 0.89 0.89 0.89 206 55 52 70 66 EB 1 EB 2 NB 1 SB 1 206 55 121 180 206 0 52 0 0 55 0 113 0.53 -0.67 0.12 -0.34 5.8 4.6 5.0 4.4 0.33 0.07 0.17 0.22 597 750 687 765 10.3 6.7 8.9 8.7 9.6 8.9 8.7 A A A A	Stop Stop Stop Stop 183 49 46 62 59 101 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89	Stop Stop Stop 183	Stop Stop Stop Stop 183	Stop Stop Stop 183	Stop Stop Stop 183	Stop Stop Stop 183	Stop Stop Stop 183	Stop Stop Stop 183

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O40912-Lago De San Marcos

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APPENDIX D

> Existing + Project Conditions Analysis Worksheets

1/25/2006 Lanes, Volumes, Timings

Existing + Project-AM

ita Fe Rd	`
ncho San	_
mp & Ra	4
B On Ra	4
SR-78 WB (,
7	4
	1
	•

	1	1	7	>	1	1	•	←	*	٠	-	*
Lane Group	EB.	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				*	2,		-	ŧ			₽	~
Total Lost Time (s)	4.0	40	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util, Factor	1.00	1.00	1.00	1.00	1.00	8	1.00	0.95	1.00	1.00	0.95	1.00
Fn					0.851							0.850
Fit Protected				0.950			0.950					
Satd. Flow (prot)	0	0	0	1770	1585	0	1770	3539	0	0	3539	1583
Fit Permitted				0.950			0.950					
Satd. Flow (perm)	0	0	0	1770	1585	0	1770	3539	0	0	3539	1583
Sald. Flow (RTOR)					134							307
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Volume (vph)	0	0	0	790	-	239	427	692	0	0	476	289
Adj Flow (vph)	0	0	0	840	-	254	454	736	0	0	909	307
Lane Group Flow (vph)	0	0	0	840	255	0	454	736	0	0	506	307
Turn Type				Pro			Prot					Perm
Protected Phases				ო	•0		5	2			9	
Permitted Phases												တ
Detector Phases				က	Ó		5	2			9	9
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	4.0
Mınımum Split (s)				8.5	20.5		8.5	20.5			20.5	20.5
Total Split (s)	0.0	0.0	0.0	53.0	53.0	0.0	32.0	53.0	0.0	0.0	21.0	21.0
Total Split (%)	%0.0	%0.0	%O'O	20.0%	20.0%	%0.0	30.2%	20.0%	0.0%	0.0%	19.8%	19.8%
Yellow Time (s)				3.5	3.5		3,5	3.5			3.5	3.5
(s) Jime (s)				1.0	1.0		1,0	1.0			1.0	1.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes					Yes
Petall Mode				None	None		None	C-Max				C-Max
Act Effet Green (s)				49.0	49.0		28.0	49.0			17.0	17.0
Actuated g/C Ratio				0 46	0.46		0.26	0.46			0.16	0.16
vrc Ratio				1.03	0.32		0.97	0.45			0.89	09.0
Control Delay				67.9	93		68.3	17.0			63.0	10.0
Queue Delay				0.0	0.0		0.0	0.0			0.0	0.0
Total Delay				67.9	9.3		68.3	17.0			63.0	10.0
10S				ш	∢		ш	m			Ш	6 0
Approach Delay					54.3			36.6			43.0	
Approach LOS					۵			Q			۵	

Intersection Summary
Cycle Length: 106
Actualed Cycle Length: 106
Offset 93 (88%), Referenced to phase 2:NBT and 6:SBT. Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated Maximum v/c Ratio: 103 Intersection Signal Delay: 44.5 Intersection Capacity Utilization 95.3% Analysis Period (min) 15

Intersection LOS: DICU Level of Service F

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Ex + Proj AM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Existing + Project-AM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

Splits and Phases: 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

8° \ 9° \ 9° \

Y:040912-Lago De San Marcos (STD))AnalysisSynchro\01-25-D6\Ex + Proj AM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

1/25/2006 Lanes, Volumes, Timings

Existing + Project - PM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

Lane Group	Lanes, volumes, IIII	Hillings					ادَ			4			
Color Colo		•	†	/	/		√	•	4	•	۶	-	•
be Configurations	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBI	NBT	NBR	SBL	SBT	SBR
al Lost Time (s) 4,0 4,0 4,0 4,0 4,0 4,0 4,0 4,0 4,0 4,0	Lane Configurations					42		~	‡			₹	×_
Protected d. Flow (porm) 0 0 1770 1583 0 1770 3539 0 0.950 0 1770 1583 0 1770 3539 0 0.950 0 1770 1583 0 1770 3539 0 0.950 0 1770 1583 0 1770 3539 0 0.950 0 1770 1583 0 1770 3539 0 0.950 0 1770 1583 0 1770 3539 0 0.950 0 1770 1583 0 1770 3539 0 0.950 0 1770 1583 0 1770 3539 0 0.950 0 1770 1583 0 1770 3539 0 0.950 0 1770 1583 0 1770 1583 0 1770 1583 0 1700 1700 1700 1700 1700 1700 1700 1	Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4,0	4.0	4.0	4.0	4.0
Protected 0.950 0.	Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
0.950 0.950	FA					0.850							0.850
0 0 0 1770 1583 0 1770 3539 0 0 3539 1 0 0 3539 1 0 0 3539 1 0 0 3539 1 0 0 3539 1 0 0 3539 1 0 0 3539 1 0 0 3539 1 0 0 3539 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Fit Protected				0.950			0.950					
0.950 0.050 0.070 1.0	Satd. Flow (prot)	٥	0	0	1770	1583	٥	1770	3539	0	0	3539	1583
1.00 1.00 1.70 1563 0 1770 3539 0 0 3539 1 216 0 170 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Fit Permitted				0.950			0.950					
1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Satd. Flow (perm)	0	0	0	1770	1583	٥	1770	3539	٥	0	3539	1583
1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Sald, Flow (RTOR)					216							430
(vph) 0 0 0 451 0 243 709 693 0 0 438 0 0 0 480 259 754 737 0 0 466 1	Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(vph) 0 0 0 480 259 754 737 0 0 466 Prot Prot Prot Prot Prot Prot Prot Prot	Volume (vph)	0	0	0	451	0	243	709	693	0	0	438	404
(vph) 0 0 0 480 259 0 754 737 0 0 466 Prot Prot Prot Prot Prot Prot Prot Prot	Adi Flow (vph)	0	0	0	480	0	259	754	737	0	0	466	430
Prot Prot Prot Prot Prot Prot Prot Prot	Lane Group Flow (vph)	0	0	0	480	259	0	754	737	0	0	466	430
3 8 5 2 6 3 8 40 40 40 40 40 40 40 40 40 85 20.5 20 80.5 20 0.0 0.0 0.0 69.0 69.0 0.0 78.0 111.0 0.0 0.0 33.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	Turn Type				Prot			Prot					Perm
9 8 5 20 5 40 40 40 40 40 40 40 40 40 40 85 20.5 8.5 20.5 8.5 20.5 8.5 20.5 20.5 33.0 8.5 20.5 8.5 20.5 20.5 33.0 3.5 20.5 8.5 20.5 8.5 20.5 33.0 3.5 20.5 8.5 20.5 3.5 20.5 20.5 20.5 20.5 20.5 20.5 20.5 20	Protected Phases				e	മ		5	2			g	
9 8 5 2 6 6 6 6 6 7 8 6 7 8 7 8 7 8 8 7 8 8 8 7 8 9 8 9 8 9 9 0 0 0 0 0 0 0 0 0 0 0 0 0	Permitted Phases												9
4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	Detector Phases				n	80		S	7			9	9
8.5 20.5 8.5 20.5 20.5 20.5 20.5 20.5 20.5 20.5 20	Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	4.0
0.00 0.00 0.00 69.0 69.0 0.0 78.0 111.0 0.0 0.0 0.0 33.0 33.0 0.0% 0.0% 0.0%	Minimum Split (5)				8.5	20.5		8.5	20.5			20.5	20.5
0.0% 0.0% 38.3% 38.3% 0.0% 43.3% 61.7% 0.0% 0.0% 18.3% 18.3% 18.3% 6.1.7% 0.0% 0.0% 18.3%	Total Split (s)	0.0	0.0	0.0	0.69	69.0	0.0		111.0	0.0	0.0	33.0	33.0
3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5	Total Split (%)	%0.0	%0:0	0.0%	38.3%	38.3%	0.0%		61.7%	%0.0	%0.0	18.3%	18.3%
1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Yallow Time (s)				3.5	3.5		3.5	3.5			3.5	3.5
Cead Lead	Red Time (s)				1.0	1.0		1.0	1.0			1.0	0.
7 Yes None None C.Max C.	l₄ead/Lag							Lead				Lag	Lag
None None CoMax Co	Lead-Lag Optimize?							Yes					χes
52.5 52.5 82.2 119.5 33.3 (2.2 0.29 0.29 0.46 0.66 0.18 0.18 (2.2 0.29 0.31 0.71 0.18 (2.2 0.20 0.2 0.20 0.2 0.20 0.2 0.20 0.2 0.2	Call Mode				None	None		None	C-Max				C-Max
0.29 0.29 0.46 0.66 0.18 0.93 0.31 0.71 0.71 0.72 0.09 0.31 0.71 0.75 0.00 0.0 0.2 0.2 0.00 0.2 0.2 0.00 0.2 0.2	Act Effct Green (s)				52.5	52.5		82.2	119.5			33.3	33.3
0.93 0.42 0.93 0.31 0.71 86.8 10.8 49.6 1.7 76.5 0.0 0.0 0.0 0.0 0.0 86.8 10.8 49.6 1.9 76.5 F B D A E E C C D	Actuated q/C Ratio				0.29	0.29		0.46	99.0			0.18	0 18
86.8 10.8 49.6 1.7 76.5 0.0 0.0 0.2 0.0 86.8 10.8 49.6 1.9 76.5 F B D A E 60.2 26.0 45.0	v/c Ratio				0.93	0.42		0.93	0.31			0 71	0.67
0.0 0.0 0.0 0.2 0.0 0.0 86.8 10.8 49.6 1.9 76.5 1.0 76.5 1.9 76.5 1.0 76.5 1.0 76.5 1.0 76.5 1.0 76.5 1.0 76.5	Control Delay				86.8	10.8		49.6	1.7			76.5	10.8
86.8 10.8 49.6 1.9 76.5 F B D A E F C 2 26.0 45.0 F E C D	Oueve Delay				0.0	0.0		0.0	0.2			0.0	0.0
F B D A 60.2 26.0	Total Defav				86.8	10.8		49.6	1.9			76.5	10.8
y 60.2 26.0 E C	507				ᄔ	æ		Ω.	∢			ш	ш
Ш	Approach Delay					60,2			26.0			45.0	
	Approach LOS					ш			ပ			۵	

intersection Summary
Cycle Length. 180
Cycle Length. 180
Actuated Cycle Length: 180
Offise 196 (33%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle. 100
Control Type: Actuated-Coordinated
Maximum vic Ratio. 0.93
Intersection Signal Delay: 39:5
Intersection LOS: D
Intersection Capacity Utilization 99.3%
Include to Service F
Analysis Period (rnin) 15

Intersection LOS: DICU Level of Service F

Y:040912-Lago De San Marcos (STD)/Analysis/Synchro\01-25-06\Ex + Proj PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Existing + Project - PM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

Splits and Phases: 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

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Y:1040912-Lago De San Marcos (STD))Analysis\Synchro\01-25-06\Ex + Proj PM.sy7 J. Bavos\V Haskell Damell & Associates, Inc.

Existing + Project-AM 1/25/2006

1/25/2005 Lanes, Volumes, Timings	nings					2	SR-78 E	B On F	Exis amp &	EXISHING + PLOJECT-AIM 2: SR-78 EB On Ramp & Rancho Santa Fe Rd	Santa 1	e Rd	
	1	†	حر	\	ţ	1	✓	-	1	٠		→	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	0 4	4 7 0	K 4	0.4	0.4	0.4	4.0	4 +	F 0.4	¥.0	← 4	0.4	
Lane Util. Factor	1.00	9.	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Fi			0.850						0.850				
Fit Protected		0.950								0.950			
Satd. Flow (prot)	0	1770	2787	0	0	0	0	3539	1583	1770	3539	0	
rii Peminea Seta Eleminea		1770	7876		c	c	c	3530	1583	1770	3539	c	
Said Flow (RTOR)		2	26.2	>	>	>	>	200	544	2	3	,	
Headway Factor	100	00.1	9.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Volume (vph)	301	0	711	0	0	0	0	629	490	167	1309	0	
Adj. Flow (vph)	334	0	790	0	0	0	0	732	544	186	1454	0	
Lane Group Flow (vph)	٥	334	790	0	0	0	0	732	544	186	1454	0	
Turn Type	Perm		Perm						Perm	Prot			ì
Protected Phases		4						2		Ψ-	ဖ		
Permitted Phases	4		4						7				
Detector Phases	4	4	4					2	7	-	9		
Minimum Initial (s)	4.0	4.0	4.D					4.0	4.0	4.0	4.0		
Minimum Split (s)	20.5	20.5	20.5					20.5	20.5	8.5	20.5		
Total Split (s)	43.0	43.0	43.0	0.0	0.0	0.0	0.0	40.0		23.0	63.0	0.0	
Total Split (%)	40.6%	40.6%	40.6%	%0.0	0.0%	0.0%	0.0%	37.7%		21.7%	59.4%	%0.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3,5		
Red Time (s)	1.0	1.0	1.0					1.0	1,0	1.0	1.0		
lead/Lag								Lag	Lag	Lead			
Lead-Lag Optimize?									Yes	Yes	:		•
Cocali Mode	None	None	None						C-Max	None	C-Max		
Act Effct Green (s)		34.0	34.0					44.4	44.4	15.6	64.0		
Actuated g/C Ratio		0.32	0.32					0.42	0.42	0.15	0.60		
v/c Ratio		0.59	0.85					0.49	0.56	0.72	0 68		
Control Detay		33.9	40.1					110	2.6	56.4	4.7		
Queue Delay		0 0	0.0					0.0	0.0	0.0	0.2		
Total Delay		33,9	40.1					11.0	2.6	56.4	4 9		
507		ပ	۵					6	∢	ш	∢		
Approach Delay		38.2						7.4			10.8		
Approach LOS		۵						∢			ń		

Intersection Summary

Cycle Length: 106 Actuated Cycle Length: 106 Offset: 89 (84%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle: 55

randon 17-pc. Actualed-Coordinated Maximum Vic Ratio: 0.85 Intersection Signal Delay: 17.4 Intersection Capacity Unitization 95.3% Analysis Period (min) 15

Intersection LOS: B ICU Level of Service F

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Ex + Proj AM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Existing + Project-AM 2: SR-78 EB On Ramp & Rancho Santa Fe Rd

Splits and Phases: 2: SR-78 EB On Ramp & Rancho Santa Fe Rd 9° **♦** Y.1040912-Lago De San Marcos (STD))Analysis\Synchro\01-25-06\Ex + Proj AM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Existing + Project - PM 2: SR-78 EB On Ramp & Rancho Santa Fe Rd Lanes, Volumes, Timings 1/25/2006

	•	†	<i>></i>	•	ţ	✓	•	-	•	٠		•
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		÷	X.					‡	k	K	‡	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Fn			0.850						0.850			
Fit Protected		0.953								0.950		
Satd Flow (prot)	Ò	1775	2787	0	0	0	0	3539	1583	1770	3539	0
Fit Permitted		0.953								0.950		
Satd. Flow (perm)	0	1775	2787	0	0	٥	0	3539	1583	1770	3539	0
Satd. Flow (RTOR)			424						463			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Volume (vph)	384	2	516	0	0	0	0	1068	670	220	698	0
Adj. Flow (vph)	400	2	538	0	0	0	0	1112	698	229	727	0
Lane Group Flow (vph)	0	405	538	0	0	0	0	1112	698	229	727	0
Turn Type	Perm		Perm						Perm	Pro		
Protected Phases		4						2		-	ဖ	
Permitted Phases	4		4						7			
Detector Phases	4	4	4					7		-	9	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Minimum Split (s)	20.5	20.5	20.5					20.5	20.5	8.5	20.5	
Total Split (s)	59.0		59.0	0.0	0.0	0.0	0.0	82.0			121.0	0.0
~	32.8%	32.8%	32.8%	0.0%	0.0%	%0.0	%0.0	45.6%			67.2%	%0.0
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
4-Red Time (s)	1.0	1.0	1.0					1.0	10	1.0	1.0	
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?									Yes	Yes		
ecall Mode	None	None	None						C-Max	None	C-Max	
Act Effct Green (s)		46.0	46.0					87.0	87.0	35.0	126.0	
Actuated q/C-Ratio		0.26	0.26					0.48	0.48	0.19	0.70	
V/C Ratio		0 89	0.52					0.65	0.70	0.67	0.29	
Control Delay		85.6	12.8					3,9	5.1	9.99	17.8	
Queue Delay		9.0	0.0					0.0	0.0	0.0	4.0	
Total Delay		86.4	12.8					9,0	5.1	9.99	18.2	
LOS		ц.	Ф					∢	∢	ш	œ	
Approach Delay		44 3						4.3			29.8	
Approach LOS		ο.						∢			ပ	

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 34 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum Vic Ratio: 0.89 Intersection Signal Delay: 21.0 Intersection Capacity Utilization 99.3% Analysis Period (min) 15

Intersection LOS: C ICU Level of Service F

1/25/2006

Existing + Project - PM 2: SR-78 EB On Ramp & Rancho Santa Fe Rd

Lanes, Volumes, Timings

Splits and Phases: 2: SR-78 EB On Ramp & Rancho Santa Fe Rd	• 1		
Splits and Phases:	·	78	96

Y:l040912-Lago De San Marcos (STD)\Malysis\Synchro\l01-25-06\Ex+ Proj PM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

Y 1040912-Lago De San Marcos (STD)/Analysis/Synchro\01-25-06\Ex + Proj PM sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

3 San Marcos Blvd & Rancho Santa Fe Rd 1/25/2006 Lanes, Volumes, Timíngs

Existing + Project-AM 3: San Marcos Blvd & Rancho Santa Fe Rd

Splits and Phases: 3: San Marcos Blvd & Rancho Santa Fe Rd

Lanes, Volumes, Timings

1/25/2006

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL H	NBT	NBR	SBL	SBT	SBR
Lane Configurations	14 14	‡	*-	£-	4		*	1	*-	-4	‡	*-
Total Lost Time (s)	4.0	0,	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4 0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	_	1.00	1.00	0.95	8
FJ			0.850		0.995	٠			0.850			0.850
Fit Protected	0.950			0.950			0.950.			0.950		
Said. Flow (prot)	3433	3539	1583	3433	3522	0	3433	3539	1583	1770	3539	1583
. Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3522	0	3433	3539	1583	1770	3539	1583
Satd. Flow (RTOR)			57		<u>,</u> 4		,		121			8
Headway Factor	1.00	1.00	8.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	8.
Volume (vph)	285	902	25	422	1033	34	140	469	627	86	674	433
Adj. Flow (vph)	310	767	57	459	1123	37	152	510	682	93	733	467
Lane Group Flow (vph)	310	767	57	459	1160	0	152	510	682	93	733	467
Turn Type	Prot		vo+mq	Prot			Prot		vo+mq	Prot		ло+ша
Protected Phases	7	4	5	က	80		ιņ	2	<u>س</u>	-	ဖ	۲~
Permitted Phases			4						2			9
Detector Phases	7	4	S	ო	ဆ		S	7	m	-	9	7
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	20.5	8.5	8.5	20.5		8,5	20.5	8.5	8.5	20.5	8.5
Total Split (s)	17.0	29.0	13.0	33.0	45.0	0.0	13.0	28.0	33.0	16.0	31.0	17.0
Total Split (%)	16.0%	27.4%	12.3%	31.1%	42.5%	0.0%	12.3%	26.4%	31.1%	_	29.2%	16.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5		3.5	3.5
MRed Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1,0	0.1	1,0	1.0
Lead/Lag	Lag	g L	Lag	Lead	Lead		Lag	Lead	Lead		Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	χes		Yes	Yes	Yes		Yes	Yes
(Tall Mode	None	None	None	None	None		None	C-Max	None		C-Max	Norse
Act Effct Green (s)	14.8	80.0	38.9	23.9	38.9			24.2	48.1		27.2	46.1
Actuated g/C Ratio	0.14	0.28	0.37	0.23	0.37			0.23	0 45	0 11	0.26	0.43
v/c Ratio	0.65	6.77	0.09	0.59	06.0			0.63	0.87	0 46	0.81	0.66
Control Delay	50.8	45.4	3.8	24.6	33.6			30.1	32.6	49.7	41.9	256
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	00	00	0.0	00
Total Delay	50.8	42.4	3.8	24.6	33 6		42.1	30.1	326	49.7	41.9	256
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Approach Delay		42.7			31.1			32.7			36.6	
Approach LOS		Ω			ပ			ပ			۵	
0												

Cycle Length 106
Actuated Cycle Length: 106
Offset: 50 (47%). Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 75 Control Type: Actuated-Coordinated Intersection Summary

Intersection LOS: DICU Level of Service D Maximum vic Ratio: 0.90 Intersection Signal Delay: 35.3 Intersection Capacity Utilization 73.7% Analysis Period (min) 15

040912-Lago De San Marcos

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Ex + Proj AM.sy7 J. Bavos/V Haskell Darnell & Associatos, Inc.

Y:040912-Lago De San Marcos (STD)\Analys\Synchro\01-25-06\Ex + Proj AM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Existing + Project - PM 3: San Marcos Blvd & Rancho Santa Fe Rd

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	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
	1	‡	R	*	± +		*	+	*_	*	+	X _
	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00
			0.850		0.993				0.850			0.850
	0.950			0.950			0.950			0.950		
	3433	3539	1583	3433	3514	0	3433	3539	1583	1770	3539	1583
	0.950			0.950			0.950			0.950		
	3433	3539	1583	3433	3514	0	3433	3539	1583	1770	3539	1583
			75		ო				83			17
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	735	703	7.7	200	1360	65	126	1071	163	141	544	601
	742	710	78	505	1374	99	127	1082	165	142	549	607
=	742	710	78	505	1440	0	127	1082	165	142	549	607
	Prot	_	vo+mq	Prot			Prot		Perm	Prot	_	pm+ov
	7	4	2	ന	60		5	2			9	7
			4						2			9
	7	4	5	33	ထ		5	2	7	_	9	7
	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4 0
	8.5	20.5	8.5	8.5	20.5		8.5	20.5	20.5	20.5		8.5
	37.0	58.9	15.6	46.1	68.0	0.0	15.6	54.5	54.5	20.5		37.0
	20.6%	32.7%	8.7%	25.6%	37.8%	0.0%	8.7%	30.3%	30.3%	11.4%		20 6%
	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	_	1.0
	Lag	Lag	Lead	Lead	Lead		Lead	Lead	Lead	Lag	Lag	Lag
	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes			Yes
	None	None	None	None	None		None	C-Max	C-Max			None
	33.0	65.7	80 7	31.3	64.0		11.0	50.5	50.5	16.5	_	890
	0.18	0.36	0 45	0.17	0.36		90.0	0.28	0.28			0 49
	1.18	0.55	0 10	0.85	1 15		0.61	1.09	0.32	0.88	0.50	0.77
	156.8	48.2	6.8	75.8	130.1		92.4	104.6	24.2	Ψ-		27.7
	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		$\overline{}$	0.0
	156.8	48.2	6.8	75.8	130.1		92.4	104.6	24.2	112.7	44.1	27.7
	u.	a	4	ш ·	ш		LL.	iL.	ပ	ш	Ω	ပ
		98.8			116.0			93.B			43.9	
		IL.			ш			u			۵	

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 90 (50%), Referenced to phase 2.NBT and 6.SBT, Start of Green
Natural Cycle: 150
Control Type, Actuated-Coordinated
Maximum v/c Ratio: 1.18
Intersection Signal Delay: 91.5
Intersection Capacity Utilization 111.4%
Analysis Period (min) 15

Intersection LOS: FICU Level of Service H

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Ex + Proj PM.sy7
040912-Lago De San Marcos

J. Bavos/V Haskell Darnell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Existing + Project - PM 3: San Marcos Blvd & Rancho Santa Fe Rd

Splits and Phases: 3: San Marcos Blvd & Rancho Santa Fe Rd

Y.1040912-Lago De San Marcos (STD)\Andlysis\Synchro\101-25-06\18x + Proj PM.sy7
J. Bavos/V Haskell
Damell & Associates, Inc.

1/25/2006 Lanes, Volumes, Timings

Existing + Project-AM 4: Lake San Marcos Dr & Rancho Santa Fe Rd

	SBT	‡	4.0	0.95			3539		3539		1.00	1091	1161	1161		9		9	4.0	20.5	79.8	75.3%	3.5	1.0			C-Max	87.6	0.83	0 40	1.0	0.0	1.0	∢	4.2	∢
•	SBL	-24	4.0	1.00		0.950	1770	0.950	1770		1,00	139	148	148	Prot	-		-	4.0	8.5	23,5	22.2%	3.5	1.0	Lag	Yes		19.5	0.18	0.45	29 4	0.0	29.4	ပ		
•	NBR		4.0	0.95			0		0	•	1.00	78	83	0								0.0%														
-	NBT	4	4.0	0.95	0.989		3500		3500	1	1.00	1007	1071	1154		7		2	4.0	20.5	56.3	53.1%	3.5	1,0	Lead	Yes	C-Max	64.1	0.60	0.54	13.8	0.0	13.8	6 0	13.8	<u>m</u>
1	WBR	X. .	4.0	1.00	0.850		1583		1583	250	1.00	235	250	250	Perm		8	80	4.0	20.5			3.5	1.0				10.4	0.10	990	14.3	0.0	14.3	œ		
/	WBL		4.0	1.00		0.950	1770	0.950	1770		1.00	72	7.7	77		80		89	4.0	20.5	26.2	24.7%	3.5	1.0			None	10.4	0.10	0 45	52.3	0.0	52.3	Ω	23.3	ပ
	Lane Group	Lane Configurations	Total Lost Time (s)	Lane Util. Factor	Fri	Fit Protected	Satd. Flow (prot)	FIt Permitted	Satd. Flow (perm)	Satd. Flow (RTOR)	Headway Factor	Volume (vph)	Adj. Flow (vph)	Lane Group Flow (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phases	Minimum Initial (s)	Minimum Spht (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	Red Time (s)	Lead/Lag	Lead-Lag Optimize?	The all Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	ros	Approach Delay	Approach LOS

Intersection LOS: B ICU Level of Service A Activated Cycle Length: 106
Offset: 91 (86%), Referenced to phase 2:NBT and 6:SBT. Start of Green
Natural Cycle: 60
Control Type: Activated-Coordinated
Maximum vic Ratio: 0.66 Intersection Summary Cycle Length: 106

intersection Signal Delay. 10.4 Intersection Capacity Utilization 52.0% Analysis Period (min) 15

Y 1040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Ex + Proj AM.sy7

J. Bavos\V Haskell
Darnell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Existing + Project-AM 4: Lake San Marcos Dr & Rancho Santa Fe Rd

79 ♦ • 86 CAN THE STATE OF T Splits and Phases: 4: Lake San Marcos Dr & Rancho Santa Fe Rd

Y 1040912-Lago De San Marcos (STD))Analysis/Synchrol01-25-06\Ex + Proj AM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Existing + Project - PM 4: Lake San Marcos Dr & Rancho Santa Fe Rd

																														•						
→	SBT	+	4.0	0.95			3539		3539		1.00	978	1019	1019		9		9	4.0	20.5	69.5	77.2%	3,5	0:1			C-Max	75.3	0.84	0.34	8.0	0.0	9.0	٧	6.8	∢
٠	SBL	-بر	4.0	1.00		0.950	1770	0.950	1770		1.00	147	153	153	Prot	-		-	4.0	8,5	15.0	16.7%	3.5	1.0	Lag	Yes	None	11.0	0.12	0.71	46.3	0.0	46.3	۵		
•	NBR		0.4	0.95			0		0		8	140	146	٥							0.0	%0.0														
-	NBT	4	4.0	0.95	0.985		3486		3486	51	1.00	1304	1358	1504		7		7	4.0	20.5	54.5	%9.09	3.5	1.0	Lead	Yes	C-Max	59.5	99.0	0.65	11.6	0.0	11.6	æ	11.6	6 13
√ .	WBR	R. .	4.0	1.00	0.850		1583		1583	92	1.00	88	92	95	Perm		æ	80	4.0	20.5	20.5		3.5	1.0			None	9.5	0.11	0.37	12.5	0.0	12.5	69		
\	WBL	-	4.0	1.00		0.950	1770	0.950	1770		1.00	73	9/	9/		6 0		æ	4.0	20.5	20.5		3.5	1.0			None	9.5	0.11	0.40	43.2	0.0	43.2	٥	26.4	ပ
	Lane Group	Lane Configurations	Total Lost Time (s)	Lane Util, Factor	Tu.	Flt Protected	Satd. Flow (prot)	Fit Permitted	Satd. Flow (perm)	Satd Flow (RTOR)	Headway Factor	Volume (vph)	Adj. Flow (vph)	Lane Group Flow (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phases	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yallow Time (s)	Red Time (s)	_ead/Lag	Lead-Lag Optimize?	Scall Mode	Act Effct Green (s)	Actuated q/C Ratio	v/c Ratio	Control Delay	Oueue Delay	Total Delay	ros	Approach Delay	Approach LOS

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 19 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Intersection LOS: B ICU Level of Service B Maximum v/c Ratio: 0.71 Intersection Signal Delay: 10.5 Intersection Capacity Utilization 62.7% Analysis Period (min) 15 Y:I040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-08\Ex + Proj PM.sy7
J. Bavos\V Haskell
Darnell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

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• Existing + Project - PM 4: Lake San Marcos Dr & Rancho Santa Fe Rd

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9° A Splits and Phases: 4: Lake San Marcos Dr & Rancho Santa Fe Rd

040912-Lago De San Marcos Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Ex + Proj PM.sy7 J. Bavos\V Haskell Damell & Associates, Inc.

Existing + Project-AM 5. Melrose Dr & Rancho Santa Fe Rd

Existing + Project-AM 5: Metrose Dr & Rancho Santa Fe Rd

Splits and Phases: 5: Melrose Dr & Rancho Santa Fe Rd

Lanes, Volumes, Timings

1/25/2006

•	SBR	R	0.7	1.00	0.850		1583		1583	-	1.00	-		-	Perm		9	9	4.0	20.5	54.0	20.9%	3.5	1.0	Lead	Yes	Max	50.1	0.49	00:00	11.0	0.0	11.0	œ			
→	SBT	+	4.0	1.00			1863		1863		1.00	929	958	958		9		9	4.0	20.5	54.0	50.9%	3.5	1.0	Lead	Yes	Max	50.1	0.49	1.06	73.2	0.0	73.2	ш	73.1	ш	
—	NBT	*	4.0	0.95			3539		3539		1.00	806	831	831		7		7	4.0	20.5	78.0		3.5	1.0			Max	74.1	0.72	0.33	6.0	0.0	6.0	∢	67.8	ш	
€	МВГ	*	4.0	1.00		0.950	1770	0.950	1770		1.00	430	443	443	Prot	5		S	4.0	8.5	24.0			1.0	Lag	Yes	None	20.0	0,19	1.28	183.7	0.0	183.7	u.			
/	EBR	×	4.0	1.00	0.850		1583		1583	361	1.00	411	424	424	Prof	4		4	4.0	20.5	28.0		3.5	1.0			None	20.6	0.20	0.70	13.7	0.0	13.7	മ			
^	EBL	¥	4.0	1.00		0.950	1770	0.950	1770		1.00	273	281	281		4		4	4.0	20.5	28.0	26.4%	3.5	1.0			None	20.6	0.20	0.79	55.7	0.0	55.7	ш	30.4	ပ	
	Lane Group	Lane Configurations	Total Lost Time (s)	Lane Util, Factor	Fi	Fit Protected	Satd. Flow (prot)	FII Permitted	Satd. Flow (perm)	Satd. Flow (RTOR)	Headway Factor	Volume (vph)	Adj. Flow (vph)	Lane Group Flow (vph)	Tum Type	Protected Phases	Permitted Phases	Detector Phases	Minimum Initial (s)	Mınımum Split (s)			Yellow Time (s)	Red Time (s)	Lead/Lag	Lead-Lag Optimize?	Sall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS	Intersection Summary

Intersection Summary

Cycle Length 106
Actuated Cycle Length: 102.7
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum Vic Ratio. 1.28
Intersection Signal Delay: 60.5

Intersection Capacity Utilization 97.8% Analysis Period (min) 15

Intersection LOS: E ICU Level of Service F

Y:040912-Lago De San Marcos (STD)\Analypis\Synchro\01-25-06\Ex + Proj AM.sy7
J. Bavos/V Haskell
Damell & Associates, Inc.

Y 1040912-Lago De San Marcos (STD)/Analysis/Synchro\01-25-06\Ex + Proj AM.sy7

J. Bavos/V Haskell

O40912-Lago De San Marcos

Darnell & Associates, Inc.

Existing + Project - PM 5: Melrose Dr & Rancho Santa Fe Rd

•																																				
*	SBR	r.	4.0	1.00	0.850		1583		1583	113	1.00	208	214	214	Perm	,	ဖ	9	4.0	20.5	95.0	52.8%	3.5	0.1	Lead	Yes	Max	5.19	0.56	0.23	10.0	0.0	10.0	∢		
→	SBT	4-	4.0	1.00			1863		1863		1.00	820	845	845		9		9	4.0	20.5			3.5	1.0	Lead	Yes	Max	91.3	0.56	0.81	38.5	0.0	38.5	ا ۵	32.7	ပ
—	NBT	ŧ	4.0	0.95			3539		3539		1.00	975	1005	1005		7		7	4.0	20.5			3.5	1.0			Max	123.3	0.75	0.38	8.2	0.0	8,2	∢	26.4	O.
✓	NBL	¥	4.0	1.00		0.950	1770	0.950	1770		1.00	259	267	267	Prof	2		5	4.0	8.5	32.0	17.8%	3.5	1.0	Lag	Yes	None	28.1	0 17	0.88	94.6	0.0	94.6	u,		
~	EBR	R. .	4.0	1.00	0.850		1583		1583	346	1.00	483	498	498	Prot	4		4	4.0	20.5	53.0	29.4%	3.5	1.0			None	32.3	0.20	0.84	32.2	00	32.2	ပ		
4	EBL	,-	4.0	1.00		0.950	1770	0.950	1770		1.00	267	275	275		4		4	4.0	20.5	53.0	29.4%	3.5	1.0			None	32.3	0.20	0.79	78.2	0.0	78.2	ш	48.5	۵
	Lane Group	Lane Configurations	Total Lost Time (s)	Lane Util, Factor	Fri	FII Protected	Sald. Flow (prot)	Fit Permitted	Satd. Flow (perm)	Satd. Flow (RTOR)	Headway Factor	Volume (vph)	Adi. Flow (vph)	Lane Group Flow (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phases	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Trailow Time (s)	All-Red Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	LOS	Approach Delay	Approach LOS

Intersection Summary Cycle Length: 180 Actuated Cycle Length: 163.7

Natural Cycle: 90

Control Type: Actuated-Uncoordinated Maximum v/c Ratio: 0.88

Intersection Signal Delay. 34.1 Intersection Capacity Utilization 82.3% Analysis Period (min) 15

Intersection LOS: C ICU Level of Service E

Lanes, Volumes, Timings 1/25/2006

Existing + Project - PM 5: Metrose Dr & Rancho Santa Fe Rd

Splits and Phases: 5: Melrose Dr & Rancho Santa Fe Rd

Y:0040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Ex + Proj PM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

040912-Lago De San Marcos

Y VO40912-Lago De San Marcos (STD))Analysis\Synchro\01-25-06\Ex + Proj PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

1/25/2006 Lanes, Volumes, Timings

Existing + Project-AM 6: San Marcos Blvd & Las Posas Rd

Lanes, Volumes, Timings

1/25/2006

Splits and Phases: 6. San Marcos Blvd & Las Posas Rd

Existing + Project-AM 6: San Marcos Blvd & Las Posas Rd

EBL EBT EBR WBL	1 1	WBL W		↑ WBT	WBR /	√ ig F	→ TBN	NBR K	J ids ►	→ SBT	→ SBR
4.0 4.0 4.0 4.0 1.00 0.95 0.95 1.00		0.7	_	4.0	1.00	1.00	-0.6	0.4	1.00	1.00	1.00
0.950 0.950 0.950	0.950	0.950			0.850	0.950		0.850	0.950		0.850
			(-)	3539	1583	1770	1863	1583	1770	1863	1583
3514 0 1770 9				3539	1583	1362	1863	1583 52	1367	1863	1583 42
1.00 1.00 1.		1.00		1.00	1.00	1.00	00.	1.00	1.00	1.00	1.00
1150 59 66	99		•	1071	107	4 ;	35	20	92	8	412
261 1198 61 69 7	50 69			1116	ΞΞ	4 4 5 4	8 %	2 25	X 22	9 4	4 2 4 2 5 4
Prot					Perm	Perm		vo+mq	Perm		vo+mq
5 2 1	-	-		9			· œ	-		য	ហ
					Ó	æ		æ	4		4
5 2 :1	7	-		9	g	ထ	ထ	-	4	4	S
4.0 4.0				4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
20.5 8.5	8.5		•	20.5	20.5	20.5	20.5	8.5	20.5	20.5	8 5
69.6 0.0 14.9	14.9					21.5	21.5				31.7
65,7% 0.0% 14.1%	14.1%		4			20.3%	20.3%			_	29.9%
3.5	3.5	3,5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
1.0 1.0				1.0	1.0	1.0	1.0	0.1	1.0	1.0	1.0
Lag Lead			_	Lead	Lead			Lead			Lag
Yes Yes					Yes			Yes			Yes
C-Max None			Ċ		C-Max	Max	Max	None	Max	Max	None
69.3 9.3				48.8	48.8	17.5	17.5	30.8	17.5	17.5	49.2
0.65	60.0	60.0		0.46	0.46	0.17	0.17	0.29	0.17	0.17	0.46
56 0.55 0.45	0.45	0.45		69 0	0.14	0.20	0.12	0.10	0.26	0.13	0.57
7.3	41.0	41.0		22.9	5.3	41.0	38.9	8	42.1	39.1	22.0
0.0 0.0 0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.7 7.3 41.0	41.0	41.0		22.9	5.3	41.0	38.9	8.1	42.1	39.1	22 0
C A D	۵	Ω		ပ	∢	۵	۵	4	۵	۵	ပ
11.3 B				22.4 C			27.7 C			25.5 C	

Intersection Summary Cycle Length: 106 Actuated Cycle Length: 106 Actuated Cycle Length: 106 Actuated Cycle Length: 106 Actuated Cycle Start and 6:WBT, Start of Green
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Natural Lydie, cos Control Type: Actuated-Coordinated Maximum V/c Ratio: 0.69 Intersection Signal Delay: 18.2 Intersection Capacity Utilization 68.4% Analysis Period (min) 15

Intersection LOS: B ICU Level of Service C

Y:1040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Ex + Proj AM.sy7 J. Bavos\V Haskell Darnell & Associates, Inc.

040912-Lago De San Marcos

040912-Lago De San Marcos Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Ex + Proj AM.sy7 J. Bavos\V Haskell Darnell & Associates, Inc.

Existing + Project - PM 6: San Marcos Blvd & Las Posas Rd

	4	1	/	>	ļ	4	€	←	•	٠	→	*	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	МВL	NBT	NBR	SBL	SBT	SBR	
I ane Configurations	*	4		-	*	R.	~	*	*	J	4-	R. .	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4,0	4.0	0.4	4.0	4.0	4.0	
Lane Util. Factor	00.	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	9.0	1.00	1.00	
Frt		0.995				0.850			0.850			0.850	
Fit Protected	0.950			0.950			0.950			0.950		;	
Satd. Flow (prot)	1770	3522	0	1770	3539	1583	1770	1863	1583	1770	1863	1583	
Flt Permitted	0.950			0.950			0.734			0.728			
Satd. Flow (perm)	1770	3522	0	1770	3539	1583	1367	1863	1583	1356	1863	1583	
Satd. Flow (RTOR)		4				4			48			45	
Headway Factor	1.00	1,00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.	1.00	
Volume (voh)	288	1363	48	64	1068	54	41	4	45	57	33	257	
Adi Flow (vph)	310	1466	52	69	1148	28	4	44	48	61	35	276	
Lane Group Flow (vph)	310	1518	0	69	1148	28	44	4	48	61	35	276	
Turn Type	Prof			Prot		Perm	Perm		pm+ov	Perm	_	. vo+mq	
Protected Phases	5	7		-	9			ω	-		4	ιΩ	
Permitted Phases						φ	80		æ	4		4	
Detector Phases	5	2		-	9	ġ	80	80	-	4	4	2	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.5	20.5		8.5	20.5	20.5	20.5	. 20.5	8.5	20.5	20.5	8.5	
Total Split (s)	59.3	122.6	0.0	27.6	6.06	90.9	29.8	29.8	27.6	29.8		59.3	
Total Split (%)	32.9%	68.1%	%0.0		50.5%	50.5%	16.6%	16.6%	15.3%	16.6%		32.9%	
Ilow Time (s)	3.5	3.5			3.5	3.5	35	3.5	3.5	3.5	3.5	3.5	
Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	Max	Max	None	Max	Max	None	
Effet Green (s)	42.6	129.6.		12.6	99.6	93.6	25.8	25.8	42.4	25.8	25.8	72.4	
Actuated o/C Ratio	0.24	0.72		0.07	0.55	0.55	0.14	0.14	0.24	0.14	0.14	0.40	
v/c Ratio	0.74	0.60		0.56	0.59	0.06	0.22	0 16	0.12	0.31	0.13	0.42	
Control Delay	58.6	13.9		93.5	17.1	3.3	71.7	69 5	12.4	74.2	68.9	32.6	
Oueue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	58.6	13.9		93.5	17.1	3.3	7.1.7	69.5	12.4	74.2	68.9	32.6	
105	ш	a		tr.	œ	∢	ш	ш	æ	ш	ш	ပ	
Approach Delay		21.5			20.6			50.1			42.9		
Approach LOS		O			ပ			Ω			۵		

intersection Surimary
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 187%, Referenced to phase 2.EBT and 6:WBT, Start of Green
Natural, 157 Cycle, 70

Control Type: Actualed-Coordinated Maxmum Vic Ratio: 0.74 intersection Signal Delay: 24.5 Intersection Capacity Utilization 65.3% Analysis Period (min) 15

Intersection LOS: C IÇU Level of Service C

Y:0040912-Lago De San Marcos (STD)/Analysis/Synchro\01-25-06\Ex + Proj PM.sy7
J. Bavos/V Haskell
Dannell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Existing + Project - PM 6: San Marcos Blvd & Las Posas Rd

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Trightning 1276 things of the control A Sold Management of the State Splits and Phases: 6: San Marcos Blvd & Las Posas Rd

Y:I040912-Lago De San Marcos (STD)!Anjalysis\Synchro\\01-25-06\Ex+ Proj PM.sy7 J. Bavos\V Haskell Darnell & Associates, Inc.

Existing + Project-AM 7: San Marcos Blvd & SR-78 EB Ramps

	4	†	~	\	1	1	4	+	•	۶	-	*	
ane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
ane Configurations Fotal Lost Time (s)	0.4	↑ 0.4	¥ 4 ¥ 0	£-9	11	0.4	0.4	0.4	0,4	4.0	.4 4 0.	k ~ 0.	
ane Util. Factor	1.00	0.91	0.88	0.97	0.91	1.00	1.00	1.00	1.00	0.95	0.95	1.00	
in Protected			0.850	0.950						0.950	0.950	0.850	
Sald. Flow (prot)	0	5085	2787	3433	5085	0	0		Ö	1681	1681	1583	
It Permitted	(9		0.950	i	•	•	•	•	0.950	0.950	0	
Satd. Flow (perm) Satd. Flow (RTOR)	0	5085	2787 929	3433	5082	0	0	0	0	1681	1681	1583	
Headway Factor	9.	1.00	1.00	1.00	1,00	1.00	00.1	1.00	1.00	1.00	1.00	1.00	
Volume (vph)	٥	765	892	177	1854	0	0	0	0	252	0	421	
Adj. Flow (vph)	O.	797	929	184	1931	0	0	0	0	262	0	439	
Lane Group Flow (vph)	0	797	929	184	1931	0	0	0	Ö	131	131	439	
Turn Type			Perm	Prot						Perm		Perm	,
Protected Phases		7		-	9						4		
Permitted Phases			7							4		4	
Detector Phases		7	2	-	9					4	4	4	
Minimum Initial (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0	
Minimum Split (s)		20.5	20.5	8.5	20.5					20.5	20.5	20.5	
Total Split (s)	0.0	40.9	40.9	14.8	55.7	0.0	0.0	0.0	0.0	50.3		50.3	
Total Split (%)	0.0%	38.6%	38.6%	14.0%	52.5%	%0.0	%0.0	%0.0	0.0%	47.5%		47.5%	
Ye ow Time (s)		3.5	3.5	3.5	3.5					3.5	3.5	3.5	
All-Red Time (s)		1.0	1.0	1.0	1.0					0.1	1.0	1.0	
ead/Lag		Lead	Lead	Lag					٠				
and Lag Optimize?		Yes	Yes	Yes									
Recall Mode		C-Max	C-Max	None	C-Max					Max	Max	Max	
Act Effet Green (s)		36.9	36.9	10.8	51.7					46.3	46.3	46.3	
Actuated g/C Ratio		0.35	0.35	0.10	0.49					0.44	0.44	0.44	
v/c Ratio		0.45	0.59	0.53	0.78					0.18	0.18	0.63	
Control Delay		24.4	9.0	41.7	18 4					19.1	19.1	28.1	
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0	
Total Delay		24.4	9.0	41.7	18.4					19.1	19.1	28.1	
-05		ပ	∢	Ω	œ					œ	Œ	ပ	
Approach Delay		16.1			20.4						24.7		
Approach LOS		60			ပ						ပ		

Cycle Length: 106

Intersection Summary

Actuated Cycle Length: 106 Offset 45 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 50

Control Type. Actuated Coordinated Maximum Vic Ratio. 0.78 Intersection Signal Delay. 19.4 Intersection Capacity Utilitzation 68.6% Analysis Period (min) 15

Intersection LOS: B ICU Level of Service C

Y:1040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Ex + Proj AM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Existing + Project-AM 7: San Marcos Blvd & SR-78 EB Ramps

Splits and Phases: 7: San Marcos Blvd & SR-78 EB Ramps

90 Y:040912-Lago De San Marcos (STD)!Ana!\#is\Synchro\01-25-06\Ex + Proj AM.sy7
J. Bavos\V Haskell
Damell & Associates, Inc.

1/25/2006 Lanes, Volumes, Timings

Existing + Project - PM 7: San Marcos Blvd & SR-78 EB Ramps

														,																						
*	SBR	*. .	0.4	1.00	0.850		1583		1583	50	1.00	533	549	549	Perm		4	4	4.0	20.5	91.0	20.6%	3.5	10			ΧeΥ	87.0	0 48	0.71	41.2	0.0	41.2	Δ		
→	SBT	4	0.4	0.95		0.950	1681	0.950	1681		9.	0	0	188		4		4	4.0	20.5			3.5	1.0		;	Max	87.0	0 48	0.23	28.0	0.0	28 0	ပ	35.9	Δ.
٠	SBL	-	4.0	0.95		0.950	1681	0.950	1681		9	366	377	189	Perm		4	4	4.0	20.5			3.5	1.0			Max	87.0	0.48	0.23	28.0	0.0	28.0	ပ		
4	NBR		0.4	90.		_	0	_	0		00.1	0	0	0								0.0%														,
	NBT		4.0	1.00			0		0		8	0	0	0							0.0	%0.0														
€	NBL		4.0	1.00			0		0		9.0	0	0	0							0.0	%0.0														
1	WBR		4.0	1.00			0		O		1.00	0	0	0							0.0	%0.0														
ļ	WBT	444	4,0	0.91			5085		5085		1.00	1349	1391	1391		9		9	0.4	20.5	89.0	49.4%	3.5	1.0			C-Max	85.0	0.47	0.58	26.0	0.0	26.0	ပ	36.2	۵
,	WBL	¥	4.0	0.97		0.950	3433	0.950	3433		00	317	327	327	Prot	-		-	4.0	8.5	31.0	7.2%	3.5	1.0	Lead		_	22.4	0.12	0.76	9.62	0.0	79.6	ш		
~	EBR	R.	4.0	0.88	0.850	_	2787	_	2787	712	1.00	1006	1037	1037	Perm		7	~	4.0	20.5	58.0	32.2% 1	3.5	1.0	Lag	Yes	C-Max	58.6	0.33	0.75	8.9	0.0	8.9	∢		
Ť	EBT	444	4.0	0.91			5085		5085		8	1213	1251	1251		2		7	4.0	20.5	58.0		3.5	1.0	Lag		C-Max (58.6	0.33	0.76	45.1	0.0	45.1	۵	28.7	ပ
4	EBL		4.0	00.			0		0		1.00	0	0	0							0.0						_									
	Lane Group	Lane Configurations	Total Lost Time (s)	Lane Util. Factor	Fr	Fit Protected	Satd. Flow (prot)	Fit Permitted	Satd. Flow (perm)	Satd. Flow (RTOR)	Headway Factor	Volume (vph)	Adi. Flow (vph)	Lane Group Flow (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phases	Minimum Initial (s)	Minimum Split (s)	Total Solit (s)	Total Solit (%)	Metow Time (s)	Red Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Effot Green (s)	Actuated q/C Ratio	v/c Ratio	Control Delay	Oueue Delay	Total Delay	FOS	Approach Delay	Approach LOS

Intersection Summary Cycle Length, 180

Actuated Cycle Length: 180 Offset. 78 (43%). Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 55

Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.76

Intersection Signal Delay: 32.7 Intersection Capacity Utilization 65.7% Analysis Period (min) 15

Intersection LOS: C ICU Level of Service C

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Ex + Proj PM.sy7
J. Bavos\V Haskeil
Darneli & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Existing + Project - PM 7: San Marcos Blvd & SR-78 EB Ramps

Splits and Phases: 7: San Marcos Blvd & SR-78 EB Ramps 90 Y.1040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Tex+ Proj PM.sy7
J. Bavos\V Haskei!
Damell & Associates, Inc.

盲	1/25/2006 Lanes. Volumes, Timings					8: S:S	Existing + Project-AM 8: San Marcos Blvd & SR-78 WB Ramps	Exis	Existing + Project-AM Blvd & SR-78 WB Ramps	Projec	St-AM Ramps
4	†	~	/	‡	4	1	4	*	٠	→	*
EBL	EBT	EBR	WBL	WBT	WBR	NBI	NBT	NBR	SBL	SBT	SBR
*	‡	*		***	W_	*	4		*		K.
4.0	4.0		4.0	4.0	4.0	4.0	0	4.0	4.0	4.0	4.0
0.97	0.95		1.00	0.91	1.00	0.97	0.95	0.95	1.00	1.00	0.88
		0.850			0.850		0.983				0.850
0.950						0.950			0.950		
3433	3539	1583	0	5085	1583	3433	3479	٥	1770	0	2787
0.950						0.950			0.950		
3433	3539	-	Ó	5085	1583	3433	3479	٥	1770	0	2787
		208			109		13				28
1.00	1.00	_	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
398	467	183	0	745	103	1073	393	52	88	o	507
452	531	208	0	847	117	1219	447	29	100	0	576
452	531	208	0	847	117	1219	506	0	100	0	576
Prod		Free		-	vo+mq	Prot			Prot		Over
ഹ	7			9	7	က	œ		7		5
		Free			9						
2	7			9	7	ო	80		7		5
4.0	4.0			4.0	4.0	4.0	4.0		4.0		4.0
8.5	20.5			20.5	8,5	8.5	20.5		8.5		8.5
	57.0			26.7	16.6	49.0	32.4	0.0	16.6	0.0	30.3
	53.8%	%0.0	%0.0	25.2%	15.7%	46.2%	30.6%	0.0%	15.7%	0.0%	28.6%
3.5	3.5			3.5	3.5	3.5	3.5		3.5		3.5
1.0	0.			1.0	1.0	1.0	1.0		1.0		1.0
Lag		•		Lead	Lead		Lag		Lead		Lag
				Yes	Yes		Yes		Yes		Yes
	C-Max		_	C-Max	None	None	Max		None		None
26.3	53.0	=		22.7	33.5	45.0	30.2		10.8		26.3
	0.50			0.21	0.32	0.42	0.28		0.10		0.25
0.53	0.30	٥		0.78	0.20	0.84	0.51		0.55		0.81
22.7	7.4	0.2		45.0	3.7	33.6	33.4		56.7		45.8
0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0		0.0
22.7	7.4	0.2		45.0	3.7	33.6	33.4		56.7		45.8
ပ	<	∢		۵	∢	ပ	ပ		w		Q
	11.9			40.0			33.5				
	n			Ω			ပ				

Intersection Summary
Cycle Length: 106
Actiuated Cycle Length: 106
Offset: 52 (49%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum vic Ratio: 0.84 Intersection Signal Delay: 31.3 Intersection Capacity Utilization 72.7% Analysis Period (min) 15

Intersection LOS: C ICU Level of Service C

040912-Lago De San Marcos Y :040912-Lago De San Marcos (STD)/Analysis\Synchro\01-25-06\Ex + Proj AM.sy7 J BavostV Haskell Darnell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Existing + Project-AM 8: San Marcos Blvd & SR-78 WB Ramps

Splits and Phases: 8: San Marcos Blvd & SR-78 WB Ramps

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\Ex + Proj AM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

1/25/2006 Lanes, Volumes, Timings

Existing + Project - PM
 San Marcos Blvd & SR-78 WB Ramps

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	*	ŧ	*		444	7	K.	‡		K		R.	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.95	0.95	1.00	1.00	0.88	
F			0.850			0.850		0.972				0.850	
Fit Protected	0.950						0.950			0.950			
Satd. Flow (prot)	3433	3539	1583	0	5085	1583	3433	3440	0	1770	0	2787	
Fit Permitted	0.950						0.950			0.950			
Satd. Flow (perm)	3433	3539	1583	0	5085	1583	3433	3440	0	1770	0	2787	
Satd. Flow (RTOR)			92			76		14				110	
Headway Factor	1.08	1.00	1.00	1.00	1.00	1.00	9	1.00	90	1.00	1.00	1.00	
Volume (vph)	418	1004	222	o	686	73	798	288	65	165	0	497	
Adj. Flow (vph)	435	1046	231	0	715	9/	831	300	68	172	0	518	
Lane Group Flow (vph)	435	1046	231	0	715	76	831	368	0	172	0	518	
Turn Type	Prof.		Free		_	vo+mq	Prof			Prot		Over.	
Protected Phases	S	2			9	7	e	ထ		7		Ŋ	
Permitted Phases			Free			9							
Detector Phases	5	2			9	7	9	00		7		ç,	
Minimum Initial (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0		4.0	
Minimum Split (s)	8.5	20.5			20.5	8.5	8.5	20.5		8.5		8.5	
Total Split (s)	50.0	97.1	0.0	0.0		39.8	82.9	43.1	0.0	39.8	0.0	50.0	
Total Split (%)	27.8%	53.9%	%0.0	%0.0	26.2%	22.1%	46.1%	23.9%	0.0%	22.1%	%0.0	27.8%	
Yellow Time (s)	3.5	3.5			3.5	3.5	3.5	3.5		3.5		3,5	-
Red Time (s)	1.0	1.0			1.0	1.0	1.0	1.0		1.0		1.0	
Lead/Lag	Lag				Lead	Lag		Lead		Lag		Lag	•
Lead-Lag Optimize?	Yes					Yes		Yes		Yes		Yes	
Recall Mode	None	C-Max			C-Max	None	None	Max		None		None	
SEffct Green (s)	46.0	106.3	180.0		56.3	82.9	65 7	39.1		22.6		46.0	
Actuated g/C Ratio	0.26	0.59	1.00		0.31	0.46	0.36	0.22		0.13		0.26	
v/c Ratio	0.50	0.50	0.15		0.45	0.10	99.0	0.49		0.77		0.65	
Control Delay	28.7	5.1	0.2		51.4	5.2	50.3	61.7		98.1		50.9	
Queue Delay	0.0	0.0	0.0		0.0	0.0	. 0.3	0.0		0.0		0.0	
Total Delay	28.7	5,1	0.2		51.4	5.2	50.7	61.7		98.1		50.9	
LOS	ပ	∢	∢		Ω	∢	a	ш		ш		۵	
Approach Delay		10.4			46.9			54.0					
Approach LOS		Ω.			Ω			۵					
:													

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset 86 (48%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycles 75146
Natural Cycle 71546
Control Type: Actuated-Coordinated
Maximum vic Ratio: 0.77

Intersection Signal Delay: 37.1 intersection Capacity Utilization 63.4% Analysis Period (min) 15

Intersection LOS: DICU Level of Service B

Y to40912-Lago De San Marcos (STD)/knalysis/Synchro\01-25-06\Ex + Proj PM.sy7
J. Bavos/V Haskell
Damell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Existing + Project - PM 8. San Marcos Blvd & SR-78 WB Ramps

Splits and Phases: 8: San Marcos Blvd & SR-78 WB Ramps

Y:040912-Lago De San Marcos (STD)/Analysis/Synchro\01-25-06\Ex + Proj PM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control Grade		41 Free 0%		*	†₁ Free 0%			Stop 0%			Stop 0%	
Volume (veh/h)	. 14	207	4	0	241	0	15	0	1	1	0	39
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91 '	0.91	0.91
Hourly flow rate (vph) Pedestrians Lane Width (ft)	15	227	4	0	265	. 0	16	0	.1	1	0	43
Walking Speed (ft/s)												
Percent Blockage Right turn flare (veh)										•		
Median type Median storage veh)		ş	•					None			None	
Upstream signal (ft) pX, platoon unblocked		417										
vC, conflicting volume	265			232			436	525	116	410	527	132
vC1, stage 1 conf vol vC2, stage 2 conf vol	0			0								
vCu, unblocked vol	0 265			0 232			436	525	116	410	527	122
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	132 6.9
tC, 2 stage (s)	3.1			3.1								• • •
tF (s)	2.2			2.2		٠	3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free % cM capacity (veh/h)	. 98 992			100 1005			97 · 474	100	100	100	100	95
Direction, Lane #		ED 0	WD 4) A (D 0	NID 4		449	914	519	447	892
Volume Total	EB 1 129	EB 2	WB 1	WB 2-	88 VVB 3	NB 1 18	SB 1 44					
Volume Left	15	0	, 0	0	0	16	1			•		
Volume Right	0	4	0	Ō	0	1	43					
cSH	992	1700	1700	1700	1700	489	877					
Volume to Capacity	0.02	0.07	0.00	0.10	0.05	0.04	0.05					
Queue Length 95th (ft)	1	0	0	0	0	3	4					
Control Delay (s) Lane LOS	1.2	0.0	0.0	0.0	0.0	12.6	9.3					
Approach Delay (s)	A 0.6		0.0			B 12.6	A 9.3					
Approach LOS	3.0	-	0.0			12.0 B	9.5 A					
Intersection Summary Average Delay			1 1							- ·		· · · · · · · · · · · · · · · · · · ·
Average Delay Intersection Capacity Uti Analysis Period (min)	lization		1.4 30.5% 15	10	CU Leve	of Ser	viçe		Α			

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					,				<u> </u>			
	*		•	•	←		•	†	<i>></i>	\	1	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control Grade		41. Free 0%		ሻ	† ‡ Free 0%	······································	· · · · · · · · · · · · · · · · · · ·	Stop			Stop 0%	
Volume (veh/h)	28	253	15	2	140	2	7	0	0	1	0	9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flore (veh)	30	272	16	. 2	151	2		0	0	1		10
Right turn flare (veh) Median type								None			None	
Median storage veh)								None		_	None -	
Upstream signal (ft) pX, platoon unblocked		417					•					
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	153 0 0			288			430	497	144	352	504	76
vCu, unblocked vol	153			0 288			430	497	144	352	504	76
tC, single (s) tC, 2 stage (s)	4.1 3.1	1		4.1			7.5	6.5	6.9	7.5	6.5	6.9
tF (s)	2.2			3.1 2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			98	100	100	100	100	99
cM capacity (veh/h)	1036			983			492	458	877	564	454	969
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	166	152	2	100	52	8	11					
Volume Left	30	0	. 2	0	0	8	1					
Volume Right cSH	1026	16	0	0	2	0	10					
Volume to Capacity	1036 0.03	1700 0.09	983 0.00	1700 0.06	1700	492	904					
Queue Length 95th (ft)	0.03	0.09	0.00	0.00	0,03	0.02	0.01					
Control Delay (s)	1.8	0.0	8.7	0.0	0 0.0	1 12.4	1 9.0					
Lane LOS	A.S	0.0	Α.	0.0	0.0	12.4 B	9.0 A					
Approach Delay (s)	0.9		0.1			12.4	9.0					
Approach LOS						В	A					
Intersection Summary												
Average Delay			1.0									
Intersection Capacity Uti Analysis Period (min)	ilization		25.6% 15	[(CU Leve	l of Ser	vice		Α			

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	۶	*	4	†	1	4		-					
Movement	EBL	EBR	NBL	NBT	SBT	SBR						 	
Lane Configurations Sign Control Grade Volume (veh/h) Peak Hour Factor Hourly flow rate (vph)	Stop 0% 158 0.93 170	50 0.93 54	37 0.93 40	4 Free 0% 46 0.93 49	Free 0% 81 0.93 87	182 0.93 196					-		
Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type Median storage veh) Upstream signal (ft)	None								e Ref			- .	
pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol	314 314	185 185	283 283										
tC, single (s) tC, 2 stage (s)	6.4	6.2	4.1										
tF (s) p0 queue free % cM capacity (veh/h)	3.5 74 658	3.3 94 857	2.2 97 1280										
Direction, Lane #	EB 1	EB 2	NB 1	SB 1									
Volume Total Volume Left Volume Right cSH Volume to Capacity Queue Length 95th (ft) Control Delay (s) Lane LOS Approach Delay (s) Approach LOS Intersection Summary	170 170 0 658 0.26 26 12.4 B 11.7	54 0 54 857 0.06 5 9.5 A	89 40 0 1280 0.03 2 3.7 A 3.7	283 0 196 1700 0.17 0 0.0									
Average Delay Intersection Capacity Ut Analysis Period (min)	ilization		4.9 38.7% 15	, IC	CU Leve	el of Ser	vice			Α		,	

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J. Bavos/V Haskell

	≯	*	4	†	↓	4	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations Sign Control Grade	Stop 0%	7		र्भ Free 0%	Free 0%	٠.	
Volume (veh/h)	183	49	46	62	59	102	:
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	
Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s)	206	55	52	70	66	115	
Percent Blockage							
Right turn flare (veh) Median type Median storage veh)	None						- .
Upstream signal (ft) pX, platoon unblocked		,					
vC, conflicting volume vC1, stage 1 conf vol	297	124	181				
vC2, stage 2 conf vol vCù, unblocked vol	297	124	181				•
tC, single (s) tC, 2 stage (s)	6.4	6.2	4.1				
tF (s)	3.5	3.3	2.2				
p0 queue free %	69	94	96				
cM capacity (veh/h)	669	927	1394				,
Direction, Lane #	EB 1	EB 2	NB 1	SB 1			
Volume Total	206	55	121 52	181			
Volume Left Volume Right	206 0	· 0 55	0	115			
cSH	669	927	1394	1700			•
Volume to Capacity	0.31	0.06	0.04	0.11			
Queue Length 95th (ft)	33	5	3	0			
Control Delay (s)	12.8	9.1	3.4	0.0			
Lane LOS	В 12.0	Α	A 3.4	0.0			
Approach Delay (s) Approach LOS	12.0 B		3.4	0.0			
Intersection Summary							
Average Delay	:::		6.3	10	2111	ot of Co-	vice A
Intersection Capacity Ut Analysis Period (min)	ilization		35.3% 15	, i C	o reve	el of Ser	vice . A

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	1	*	•	†	+	4		·		
Movement	EBL	EBR	NBL	NBT	SBT	SBR				
Lane Configurations Sign Control Volume (vph) Peak Hour Factor	Stop 158 0.93	50 0.93	37 0.93	4 Stop 46	\$top 81	182				
Hourly flow rate (vph)	170	54	40	0.93 49	0.93 87	0.93° 196				
Direction, Lane #	EB 1	EB 2	NB 1	SB 1			,			
Volume Total (vph) Volume Left (vph) Volume Right (vph) Hadj (s) Departure Headway (s) Degree Utilization, x Capacity (veh/h) Control Delay (s) Approach Delay (s) Approach LOS	170 170 0 0.53 5.9 0.28 579 9.9 9.2 A	54 0 54 -0.67 4.7 0.07 721 6.8	89 40 0 0.12 5.0 0.12 682 8.7 8.7 A	283 0 196 -0.38 4.3 0.33 805 9.4 9.4 A					-	
Intersection Summary	·		0.0					 · · · · · · · · · · · · · · · · · · ·		
Delay HCM Level of Service Intersection Capacity Util Analysis Period (min)	lization	;	9.2 A 38.7% 15	IC	U Leve	l of Servic	е	A		

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040912-Lago De San Marcos

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SBT SBR **EBL EBR NBL NBT** Movement Lane Configurations Ţ, ۲ 4 Sign Control Stop Stop Stop 102 Volume (vph) 183 49 46 62 59 0.89 Peak Hour Factor 0.89 0.89 0.89 0.89 0.89 115 Hourly flow rate (vph) 206 55 52 70 66 EB 2 NB 1 Direction, Lane # EB 1 SB₁ Volume Total (vph) 121 181 206 55 Volume Left (vph) 206 0 52 0 55 115 Volume Right (vph) 0 0 Hadj (s) 0.53 -0.67 0.12 -0.35 4.6 5.0 4.4 Departure Headway (s) 5.8 0.17 0.22 Degree Utilization, x 0.33 0.07 765 Capacity (veh/h) 597 750 687 Control Delay (s) 10.4 6.7 8.9 8.7 8.9 8.7 Approach Delay (s) 9.6 Approach LOS Α Α Α Intersection Summary 9.2 Delay HCM Level of Service Α 35.3% Intersection Capacity Utilization ICU Level of Service Α 15 Analysis Period (min)

Y:\040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\AWSC at San Marino\Ex + Proj PM-AWSC.sy7 040912-Lago De San Marcos J. Bavos/V Haskell

APPENDIX	E
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➤ Near Term Cumulative w/o Project Conditions Analysis Worksheets

1/25/2006 Near Term Cumulative w/o Project-AM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

Lanes, Volumes, Timings

1/25/2006

Near Term Cumulative w/o Project-AM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

Lanes, Volumes, Timings

Splits and Phases: 1; SR-78 WB On Ramp & Rancho Santa Fe Rd

1583 309 1.00 290 309 309 Perm Lead Yes 0.4 19.8% 19.8% 3.5 3.5 Yes Yes C-Max C-Max 17.0 0.16 20.5 0.60 10.1 10.1 SBT 0.95 1.00 484 515 515 21.0 0.1 Lead 17.0 65.1 0.91 0 0 8000 0.0 0.0% 0.4 %0.0 NBR 0.40 9 20.5 53.0 50.0% 3539 Lag Yes None C-Max 1.00 708 753 753 49.0 0.46 0.0 16.6 0.950 1770 0.950 1770 32.0 1.00 1.00 443 471 471 Prot 28.0 1 01 0 0.0 1.00 245 261 1.00 8.5 20.5 0 0.0 53.0 53.0 1 0.0% 50.0% 50.0% 0.0 3.5 3.5 1.0 1.0 4.0 1.00 0.853 1589 B 61.6 E 0.0 0.33 10.3 0.950 1770 0.950 1770 None 49.0 0.46 1.06 77.4 0.0 77.4 E 9. 866 866 1.00 0.4 8 0.0 0.4 1 EBT 0 8 0.0 1.00 8 EBL Volume (vph) Adj. Flow (vph) Lane Group Flow (vph). Turn Type Lead-Lag Optimize? Recall Mode Act Effct Green (s) Actuated g/C Ratio Lane Configurations Total Lost Time (s) Satd. Flow (RTOR) Minimum Split (s)
Total Split (s)
Total Split (%)
Yellow Time (s) Minimum Initial (s) Permitted Phases Satd. Flow (perm) Protected Phases Satd. Flow (prot) Lane Util. Factor Headway Factor All-Red Time (s) Detector Phases Approach Delay Approach LOS Fit Permitted Control Delay Queue Delay Fit Protected Lane Group otal Delay .ead/Lag v/c Ratio

ntersection Summary Cycle Length: 106

Offset: 93 (88%), Referenced to phase 2:NBT and 6:SBT, Start of Green Actuated Cycle Length: 106

Vatural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio; 1.06

Intersection LOS: D ICU Level of Service F Intersection Signal Delay: 48 6 Intersection Capacity Utilization 97.6% Analysis Period (min) 15

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\u\TG-No Proj AM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

Y:\040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\NTG-No Proj AM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Near Term Cumulative w/o Project - PM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

9.1 1583 405 431 431 18.3% 0.18 0.68 C-Max C-Max 32.3 0.0 33.0 0.0% 18.3% 1 3539 3539 SBT 0.95 1.00 456 E 47.2 485 0.18 79.4 0 1.00 0 1.00 SBL 000 1.00 0.0 0 0 1.00 NBT 111.0 3539 3539 0.0% 43.3% 61.7% 117.3 None C-Max 0.950 1770 0.950 1770 78.0 8 1.00 727 773 773 81.0 0.45 R 0.97 0 1.00 0.0 WBR 1.00 245 261 WBT 1.00 1589 20 5 69 0 1589 0.0% 38.3% 38.3% 209 1.00 None 12.4 12.4 8.5 1770 8 0.950 1770 0.950 1.0 0.30 WBL 8 4.0 1.0 1.0 EBR 0.0 8 0.0 0.0 1.00 EB7 8 0.0 EBL ane Group Flow (vph) Lead/Lag Lead-Lag Optimize? Lane Configurations Total Lost Time (s) Satd. Flow (perm) Satd. Flow (RTOR) Actuated g/C Ratio Act Effct Green (s) Minimum Initial (s) Permitted Phases Protected Phases Minimum Split (s) Satd. Flow (prot) All-Red Time (s) ane Util. Factor **Detector Phases** Total Split (s) Total Split (%) Yellow Time (s) Headway Factor Approach Delay Adj. Flow (vph) Approach LOS Volume (vph) Flt Protected Control Delay FII Permitted Queue Delay Recall Mode otal Delay urn Type v/c Ratio

ntersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 96 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green Vatural Cycle: 100

Sontrol Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay, 42.4 Intersection Capacity Utilization 101:7% Analysis Period (min) 15

Intersection LOS; D ICU Level of Service G

Y:\040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\NTC-No Proj PM.sy7 J. Bavos/V Haskell

Darnell & Associates, Inc.

anes, Volumes, Timings 1/25/2006

Near Term Cumulative w/o Project - PM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

Portional Control Con Splits and Phases: 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

Y:040912-Lago De San Marcôs (STD)/Analysis/Synchro\01-25-06\NTC-No Proj PM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

Near Term Cumulative w/o Project-AM	2: SR-78 EB On Ramp & Rancho Santa Fe Rd
1/25/2006	Lanes, Volumes, Timings

EBL EBT EBR WBL WBT WBR NBL NBT 100 1.00 1.00 0.85 0.95 0.953 0.95	Lanes, Volumes, Timings	mings					5:	SR-78	EB On	Ramp 8	2: SR-78 EB On Ramp & Rancho Santa Fe Rd	5 Santa	Fe Rd
FBL EBR WBL WBT WBR NBL NBT		*	†	_	,	†	4	€	←	•	٨	-	•
40 47 47 40 40 40 40 40 40 40 40 40 40 40 40 40	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1.00 4.0	Lane Configurations		4	R.R.					+	R_	*	‡	
1.00 1.00 0.88 1.00 1.00 1.00 0.95 0.953 0.953 0.953 0.953 0.1775 2787 0 0 0 0 3539 1.00 1.00 1.00 1.00 1.00 1.00 1.00 305 5 724 0 0 0 0 0 0 768 305 6 804 0 0 0 0 0 768 1.00 1.00 1.00 1.00 1.00 1.00 1.00 205 804 0 0 0 0 0 0 768 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Fotal Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
0.953 0.953	Lane Util, Factor	1.00	1.00	0.88	1.00	1.00	1.00	1,00	0.95	1.00	1.00	0.95	1.00
0 1775 2787 0 0 0 3539 0 1775 2787 0 0 0 0 3539 1.00 1.00 1.00 1.00 1.00 1.00 305 5 724 0 0 0 0 0 0 5819 339 6 804 0 0 0 0 0 768 4	F.		٠.	0.850						0.850			
1775 2787 0 0 0 3539 1953 2787 0 0 0 0 3539 100 1775 2787 0 0 0 0 3539 100 1.00 1.00 1.00 1.00 1.00 305 5 724 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Fit Protected		0.953								0.950		
0.953 1.00 1755 2787 0 0 0 0 3539 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Satd. Flow (prot)		1775	2787	0	0	0	0	3539	1583	1770	3539	0
100 1775 2787 0 0 0 3539 100 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Fit Permitted		0.953								0.950		
1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Satd. Flow (perm)	0	1775	2787	0	0	0	0	3539	1583	1770	3539	0
1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Satd. Flow (RTOR)									570			
335 5 724 0 0 0 0 0 768 339 6 804 0 0 0 0 768 Norm Norm Norm Norm Norm Norm 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
339 6 804 0 0 0 768 Perm 4	Volume (vph)	305	S	724	0	0	0	0	691	513	170	1328	0
h) D 345 804 0 0 0 768 Perm 4 4 4 4 4 4 4 4 4 4 4 0 40 205 205 205 205 205 205 43.0 43.0 0.0 0.0 0.0 0.0 40.0 40.6% 40.6% 40.6% 0.0% 0.0% 0.0% 0.0% 37.7% 3.5 3.5 3.5 3.5 3.5 1.0 1.0 1.0 1.0 1.0 0.0 0.0 0.0 0.0 40.0 1.0 0.0 0.0 0.0 0.0 1.1 8 8.0 0.0 0.0 0.0 0.0 1.1 8 8.0 0.0 0.0 0.0 0.0 1.1 8 8.0 0.0 0.0 0.0 0.0 1.1 8 8.0 0.0 0.0 0.0 0.0 1.1 8 8.0 0.0 0.0 0.0 0.0 1.1 8 8.0 0.0 0.0 0.0 0.0 1.1 8 8.0 0.0 0.0 0.0 0.0 0.0 1.1 8 8.0 0.0 0.0 0.0 0.0 0.0 1.1 8 8.0 0.0 0.0 0.0 0.0 0.0 1.1 8 8.0 0.0 0.0 0.0 0.0 0.0 0.0 1.1 8 8.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Adj. Flow (vph)	339	9	804	0	0	0	0	768	570	189	1476	0
Perm	Lane Group Flow (vph)	0	345	804	0	0	0	0	768	570	189	1476	0
4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Turn Type	Perm		Perm						Perm	Prot	,	
4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 205 205 205 205 205 205 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.	Protected Phases		4						2			9	
4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Permitted Phases	4		4						7			
40 40 40 40 40 40 40 40 40 40 40 40 60 40 40 60 40 60 40 60 40 60 60 40 60 60 40 60 60 40 60 60 40 60 60 40 60 60 40 60 60 40 60 60 40 60 60 40 60 60 40 60 60 40 60 60 40 60 60 40 60 60 40 60 60 40 60 60 60 60 60 60 60 60 60 60 60 60 60	Detector Phases	4	4	4					2	2	-	9	
20.5 20.5 20.5 20.5 20.5 20.5 43.0 40.5 40.5 40.5 40.5 40.5 40.5 40.5 40	Minimum Initiat (s)	40	4.0	4.0					4.0	4.0	4.0	4.0	
43.0 43.0 43.0 0.0 0.0 0.0 40.0 40.0 40.	Minimum Split (s)	20.5	20.5	20.5					20.5	20.5	8.5	20.5	
40.6% 40.6% 40.6% 0.0% 0.0% 0.0% 37.7% 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5	Total Split (s)		43.0	43.0	0.0	0.0	0.0	0.0	40.0	40.0	23.0	63.0	0.0
3.5 3.5 3.5 3.5 3.5 3.5 3.5 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Total Split (%)		40.6%	40.6%	%0.0	%0.0	0.0%	0.0%	37.7%	37.7%	21.7%	59.4%	%0.0
1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
None None None C-Max 343 343 434 440 C-Max 440 C-Max 600 0.86 C-Max 600 0.86 C-Max 600	All-Red Time (s)	1.0	1.0	1.0					1.0	10	1.0	1.0	
None None None None None None None Ave	Lead/Lag								Lag	Lag	Lead		
None None None C-Max 34 343 440 440 0.32 0.32 0.42 0.42 0.60 0.86 0.52 0.52 34.2 41.0 0.0 0.0 34.2 41.0 0.0 0.0 C D B B C D 8.0 8.0 D A A	Lead-Lag Optimize?	٠							Yes	Yes	Yes		
34.3 34.3 0.32 0.32 0.60 0.86 34.2 41.0 0.0 0.0 34.2 41.0 C D 39.0 D	Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
0.32 0.32 0.60 0.86 0.86 0.00 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Act Effct Green (s)		343	34.3					440	44.0	15.7	63.7	
0.60 0.86 34.2 41.0 0.0 0.0 34.2 41.0 C D 39.0 D	Actuated g/C Ratio		0.32	0.32					0.42	.0.42	0.15	09.0	
342 410 0.0 0.0 342 410 C D 390 D	v/c Ratio		0.60	0.86					0.52	0.58	0.72	0.69	
0.0 0.0 34.2 41.0 C D 39.0	Control Delay		34.2	41.0					11.8	2.9	56.0	4.7	
34.2 41.0 C D 39.0 D	Queue Defay		0.0	0.0					0.0	0.0	0.0	0.2	
33°0 B	Total Delay		34.2	41.0					11.8	2.9	56.0	4.9	
39.0 D	ros		ပ	٥					മ	∢	ш	∢	
۵	Approach Delay		39.0						8.0			10.7	
Information Commons	Approach LOS		۵						∢			8	
	Intersection Summary												

Cycle Length: 106

Actuated Cycle Length: 106
Offset: 89 (84%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 55.
Control Type: Actuated-Coordinated
Maximum vic. Ratio: 0.86
Intersection Signal Delay: 17.7
Intersection Capacity Utilization 97.6%
Analysis Period (min) 15

Intersection LOS: B ICU Level of Service F

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\NTC-No Proj AM.sy7
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Lanes, Volumes, Timings 1/25/2006

Near Term Cumulative w/o Project-AM 2: SR-78 EB On Ramp & Rancho Santa Fe Rd

Splits and Phases: 2: SR-78 EB On Ramp & Rancho Santa Fe Rd

040912-Lago De San Marcos Y.1040912-Lago De San Marcop (STD))Analysis\Synchro\01-25-06\NTG-No Proj AM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

1/25/2006 Lanes, Volumes, Timings

Near Term Cumulative w/o Project - PM 2: SR-78 EB On Ramp & Rancho Santa Fe Rd

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		٠,	R.					+	*-	*	*		
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	Φ.	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Fr			0.850						0.850				
Fit Protected		0.953								0.950			
Satd. Flow (prot)	0	1775	2787	0	0	0	0	3539	1583	1770	3539	0	
Fit Permitted		0.953								0.950			
Satd, Flow (perm)	0	1775	2787	0	0	0	0	3539	1583	1770	3539	0	
Satd. Flow (RTOR)			411						469				
Headway Factor	1.00	1.00	1.00	1.00	00.	1.00	1,00	1.00	100	1.00	1.00	1.00	
Volume (vph)	385	S	536	0	0	0	0	1089	692	225	737	0	
Adj. Flow (vph)	401	ťΩ	558	0	0	0	0	1134	721	234	768	0	
Lane Group Flow (vph)	0	406	558	0	0	0	0	1134	721	234	768	0	
Turn Type	Perm		Perm						Perm	Prot	,		
Protected Phases		4						2		-	9		
Permitted Phases	4		4						7				
Detector Phases	4	4	4					2	2	-	ဖ		
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0		
Minimum Split (s)	20.5	20.5	20.5					20.5		8.5	20.5		
	59.0		59.0	0.0	0.0	0.0	0.0	82.0		39.0	121.0	00	
Total Split (%)	32.8%	32.8%	32.8%	%0.0	%0.0	%0.0	0.0%	45.6%	45.6%		67.2%	0.0%	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3 5	•	
All-Red Time (s)	1.0	1.0	1.0					1 0	1.0	1.0	1.0		
Lead/Lag								Lead	Lead	Lag			
Lead-Lag Optimize?									Yes				
Recall Mode	None	None	None					C-Max	C-Max	_	C-Max	_	
Act Effct Green (s)		46.3	46.3					86.7	86.7	35.0	125.7		
Actuated g/C Ratio		0.26	0.26					0.48	0.48	0.19	0.70		
v/c Ratio		0.89	0.55					79.0	0.72	0.68	0.31		
Control Delay		85.7	15.4					3.9	5.9	66.7	18.0		
Queue Delay		7	0.0					0.1	0.0	0.0	0.4		
Total Delay		86.7	15.4					3.9	5.9	66.7	18.4		
ros		LL,	8					∢	∢	w	œ		
Approach Delay		45.5						4.7			29.7		
Approach LOS		۵						4			O		

Cycle Length: 180

Actuated Cycle Length: 180 Offset: 34 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle; 70 Control Type: Actuated-Coordinated Maximum vic Ratio: 0.89

Intersection LOS: C ICU Level of Service G

Intersection Signal Delay. 21.5 Intersection Capacity Utilization 101.7% Analysis Period (min) 15

Y Y040912-Lago De San Marcos (STD)/Analysis/Synchro\01-25-06\NTC-No Proj PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

1/25/2006

Lanes, Volumes, Timings

Near Term Cumulative w/o Project - PM 2: SR-78 EB On Ramp & Rancho Santa Fe Rd Splits and Phases: 2: SR-78 EB On Ramp & Rancho Santa Fe Rd

♦ of 171 solutions of the solution of the solutions of t Y:040912-Lago De San Marqos (STD)/Analysis/Synchro\01-25-06\u01b4\01-No Proj PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Near Term Cumulative w/o Project-AM 3: San Marcos Blvd & Rancho Santa Fe Rd

1.00 430 467 467 pm+ov 170 0.43 26.6 Vone 45.8 1.00 706 767 767 44 44.1 0.950 1770 0.950 503 1.00 1583 780 780 vo+mq 1.00 525 571 571 30.3 Vone C-Max 4.0 0.950 3433 0.950 3433 0.95 0 WBR 35 38 0.995 45.0 3522 WBT 3522 1055 1147 0.0 33.3 0.91 3433 0.950 3433 1.00 470 511 511 Prot 0.950 12.3% 31.1% 23.2 1.00 1583 1583 76 83 83 pm+ov 1.00 3539 3539 EBT 720 720 783 783 16.0% 27.4% .470 0.0 49.8 3433 3433 1.00 285 310 0.97 Volume (vph) Adj. Flow (vph) Lane Group Flow (vph) Lane Configurations Total Lost Time (s) -ead/Lag -ead-Lag Optimize? Satd. Flow (RTOR) Minimum Initial (s) Minimum Split (s) Actuated g/C Ratio Satd. Flow (perm) Act Effct Green (s) Protected Phases Permitted Phases Satd. Flow (prot) ane Util. Factor **leadway Factor** Detector Phases 'ellow Time (s) All-Red Time (s) opproach Delay otal Split (%) Controt Delay Queue Delay Approach LOS Fit Permitted otal Split (s) Fit Protected Recall Mode otal Delay urn Type /c Ratio

ntersection Summary ycle Length: 106

ctuated Cycle Length: 106

Offset: 50 (47%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Vatural Cycle: 90

Control Type: Actuated-Coordinated

ntersection Signal Delay: 38.0 Maximum v/c Ratio: 0.95

Intersection Capacity Utilization 79.3% Analysis Period (min) 15

Intersection LOS: D ICU Level of Service D

040912-Lago De San Marcos Y:1040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\INTC-No Proj AM.sy7

J. Bavos/V Haskell Darnell & Associates, Inc.

1/25/2006

Lanes, Volumes, Timings

Near Term Cumulative w/o Project-AM 3: San Marcos Bivd & Rancho Santa Fe Rd

Splits and Phases: 3: San Marcos Blvd & Rancho Santa Fe Rd

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\NTC-No Proj AM.sy7 J. BavosV Haskell

Darnell & Associates, Inc.

1/25/2006 Lanes, Volumes, Timings

Near Term Cumulative w/o Project - PM 3: San Marcos Blvd & Rancho Santa Fe Rd

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PERSONAL PROPERTY AND PRO

Splits and Phases: 3: San Marcos Blvd & Rancho Santa Fe Rd

Lanes, Volumes, Timings

1/25/2006

Near Term Cumulative w/o Project - PM 3: San Marcos Bivd & Rancho Santa Fe Rd

	`	1	>	-	,	/		_	Ĺ	۶	+	¥	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	<u>, , , , , , , , , , , , , , , , , , , </u>	ŧ	¥.	k.	₹		*	ı	R	*	*	W.	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	40	4.0	4,0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0	1.00	1.00	0.95	1.00	
FIA.			0.850		0.993				0.850			0.850	
Fit Protected	0.950			0.950			0.950			0.950			
Sald. Flow (prot)	3433	3539	1583	3433	3514	0	3433	3539	1583	1770	3539	1583	
Fit Permitted	0.950			0.950			0.950			0.950			
Sald. Flow (perm)	3433	3539	1583	3433	3514	0	3433	3539	1583	1770	3539	1583	
Satd. Flow (RTOR)			57		E)				111			5	
Headway Factor	0.0	1.00	1.00	1.00	1.00	8	1.00	1.00	1.00	1.00	1.00	1.00	
Volume (vph)	735	715	139	600	1385	65	161	1116	213	145	609	605	
Adj. Flow (vph)	742	722	140	909	1399	99	163	1127	215	146	615	611	
Lane Group Flow (vph)	742	722	140	909	1465	0	163	1127	215	146	615	611	
Tum Type	Pro		pm+ov	Prot			Prot		Perm	Prot	,	pm+ov	
Protected Phases	7	4	S	ന	œ		S	2		-	9	7	
Permitted Phases			4						2			9	
Detector Phases	7	4	5	e	œ		2	2	2	-	9	7	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0	4.0		4.0	
Minimum Split (s)	8.5	20.5	8.5	8.5	20.5		8.5	20.5	20.5	20.5	20.5	8	
Total Split (s)		58.9		46.1	68.0	0.0		54.5	54.5	20.5		37.0	
Total Split (%)	20,6%	32.7%		25.6%	37.8%	0.0%		30.3%	30.3%	11.4%		20.6%	
Yellow Time (s)		3.5		3,5	3.5			3.5	3.5	3.5		3.5	
All-Red Time (s)		1.0		1.0	1.0			1.0	1.0	1.0		1.0	
Lead/Lag		Lag		Lead	Lead		Lead	Lead	Lead	Lag	_	Lag	
Lead-Lag Optimize?		Yes		Yes	Yes			Yes	Yes	Yes		Yes	
Recall Mode		None	_	None	None			C-Max	C-Max	Max (None :	
Act Effct Green (s)	33.0	59.6	75.0	37.4	64.0			50.5	50.5	16.5		88.6	
Actuated g/C Ratio	0.18	0.33	0.42	0.21	0.36		90.0	0 28	0.28	0.09	0.31	0.49	
v/c Ratio	1.18	0.62	0.20	0.85	1,17			1.13	0.41	06.0	0.56	0.78	
Control Delay	156.8	54.0	21.0	68.3	136.4			116.5	24.7	117.4	46.6	29.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay	156.8	54.0	21.0	68.3	136.4		100.0	116.5	24.7	117.4	46.6	29.4	
LCS .	ш.	٥	ပ	ш	ட		u.	ட	ပ	L	۵	ပ	
Approach Detay		98.7			116.5			101.6			46.5		
Approach LOS		ti.			ц,			u.			۵		
Contract of the contract of th													

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 90 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated Maximum vic Ratio: 1.18 Intersection Signal Delay: 94.0 Intersection Capacity Utilization 113.5% Analysis Period (min) 15

Intersection LOS: FICU Level of Service H

Y:040912-Lago De San Marcos (STD)/Analysis\Synchro\01-25-06\NTC-No Proj PM,sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

Y:040912-Lago De San Martos (STD)/Analysis/Synchro\01-25-06\NTC-No Proj PM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

Near Term Cumulative w/o Project-AM 4: Lake San Marcos Dr & Rancho Santa Fe Rd

1/25/2006

\$ 0.00 \$

Lanes, Volumes, Timings 1/25/2006

Near Term Cumulative w/o Project-AM 4: Lake San Marcos Dr & Rancho Santa Fe Rd

Splits and Phases: 4: Lake San Marcos Dr & Rancho Santa Fe Rd

3539 4.0 20.5 79.8 None C-Max 19.5 87.2 1.00 1203 1280 1280 3.5 0.0% 22.2% 75.3% 0.82 0.950 1770 0.950 1770 1.00 140 149 23.5 Lag Yes 0.18 0.46 30.1 4.0 8 0.0 114 107 24.7% 24.7% 53.1% 3.5 3.5 3.5 1.0 1.0 1.0 0.988 3497 3497 20.5 16.4 0.0 16.4 1212 1289 1403 Lead Yes 0.60 NBT C-Max 63.7 16.4 0.67 0.850 1583 250 1.00 235 250 250 Perm 1583 20.5 26.2 10.8 0.10 0.65 13.8 0.0 13.8 B 0.950 1770 0.950 1770 Lanes, Volumes, Timings 00.1 20.5 WBL 0.49 53.3 0.0 53.3 0.10 10.8 -ane Group Flow (vph) Lane Group Lane Configurations Total Lost Time (s) .ead-Lag Optimize? Satd. Flow (RTOR) Actuated g/C Ratio Minimum Initial (s) Act Effct Green (s) Satd. Flow (perm) Total Split (%)
Total Split (%)
Yellow Time (s)
All-Red Time (s) Protected Phases Satd. Flow (prot) Permitted Phases Minimum Split (s) Lane Util, Factor Detector Phases Headway Factor Approach Delay Adj. Flow (vph) Control Delay Queue Delay Approach LOS Volume (vph) Fit Protected FIt Pennitted Recall Mode otal Delay ead/Lag v/c Ratio

ntersection Summary Sycle Length: 106

Actuated Cycle Length: 106 Offset: 91 (86%), Referenced to phase 2:NBT and 6.SBT, Start of Green Vatural Cycle: 65

Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.67

Intersection Signal Delay. 11.8 Intersection Capacity Utilization 59.3% Analysis Period (min) 15

Intersection LOS: BICU Level of Service B

Y:I040912-Lago De San Marcos (STD)/Analysis/Synchrol01-25-06\NTC-No Proj AM.sy7 Darnell & Associates, Inc.

Y:040912-Lago De San Marcos∜STD)\Analysis\Synchro\01-25-06\NTC-No Proj AM.sy7 040912-Lago De San Marcos

J. Bavos/V Haskell Darnell & Associates, Inc.

Near Term Cumulative w/o Project - PM 4: Lake San Marcos Dr & Rancho Santa Fe Rd

																					-																	
→	SBT	ŧ	4.0	0.95			3539		3539		00.	1212	1262	1262		9		9	4.0	20.5	69 5	77.2%	3.5	1.0			C-Max	8.07	0.79	0.45	1.5	0.0	5.	∢.	5.9	∢		-
۶	SBL	*-	4.0	00		0.950	1770	0.950	1770		1.00	140	146	146	Prot	-		-	4.0	8.5	15.0	16.7%	3.5	1.0	Lag	Yes	None	11.0	0.12	0.68	43.9	0.0	43.9	٥				
•	NBR		4.0	0.95			0		0		1.00	158	165	0							0.0	%0.0																
	NBT	≑	4.0	0.95	0.985		3486		3486	21	1.00	1454	1515	1680		7		7	4.0	20.5	54.5	%9.09	ည် (၃)	1.0	Lead	Yes	C-Max	55.8	0.62	0.77	16.2	00	16.2	മ	16.2	α,		
/	WBR	*-	4.0	1,00	0.850		1583		1583	89	9.	85	88	89	Perm		ထ	6 0	4.0	20.5	20.5	22.8%	3.5	1.0			None	11.2	0.12	0.32	11.0	0.0	11.0	œ				
•	WBL	y	4.0	1.00		0.950	1770	0.950	1770		1.00	107	111	113		80		80	4.0	20.5	20.5	22.8%	3.5	1.0			None	11.2	0.12	0.50	44.0	0.0	44.0	۵	29.3	O		1
	Lane Group	Lane Configurations	Total Lost Time (s)	Lane Util, Factor	ī.	Fit Protected	Satd. Flow (prot)	Fit Permitted	Satd. Flow (perm)	Satd. Flow (RTOR)	Headway Factor	Volume (vph)	Adj. Flow (vph)	Lane Group Flow (vph)	Tum Type	Protected Phases	Permitted Phases	Detector Phases	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay.	Queue Delay	Total Delay	LOS .	Approach Detay	Approach LOS	Intersection Summery	The state of the s

Actuated Cycle Length: 90 Cycle Length: 90

Offset: 19 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle: 80 Control Type: Actualed-Coordinated Maximum v/c Ratio: 0.77

Intersection LOS: B ICU Level of Service C

Intersection Signal Delay: 12.6 Intersection Capacity Utilization 68.9% Analysis Period (min) 15

Y .040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\NTC-\\\ 0 Proj PM.sy7 1. Bavos\V Haskell Darnell & Associates, Inc.

Near Term Cumulative w/o Project - PM 4: Lake San Marcos Dr & Rancho Santa Fe Rd Splits and Phases: 4: Lake San Marcos Dr & Rancho Santa Fe Rd Lanes, Volumes, Timings 1/25/2006

Y:/040912-Lago De San Mardos (STD)/Analysis/Synchro\01-25-06\NTC-No Proj PM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

Near Term Cumulative w/o Project-AM	5: Meirose Or & Rancho Santa Fe Rd
1/25/2006	Lanes, Volumes, Timings

Near Term Cumulative w/o Project-AM 5: Metrose Dr & Rancho Santa Fe Rd

Splits and Phases: 5: Melrose Dr & Rancho Santa Fe Rd

1/25/2006 Lanes, Volumes, Timings

1000	2						J. Mellose DI & Rancilo Santa Fe Rd
	1	~	€	←	→	•	
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	_ _	*_		+	*	R	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	.0	
Lane Util. Factor	9.0	1.00	1.00	0.95	1.00	1.00	
. TH		0.850				0.850	-
Fit Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1770	3539	1863	1583	
Fit Permitted	0.950		0.950				
Satd. Flow (perm)	1770	1583	1770	3539	1863	1583	
Satd. Flow (RTOR)		345				۳	
Headway Factor	1.00	1.00	00.	1.00	1.00	100	
Volume (vph)	305	605	784	1029	1046	ur.	
Adj. Flow (vph)	314	624	808	1061	1078	ı un	
Lane Group Flow (vph)	314	624	808	1061	1078	'n	
Turn Type		Prot	Prot			Perm	
Protected Phases	4	4	·s	7	9		
Permitted Phases						9	
Detector Phases	4	4	2	2	ဖ	9 49	
Minimum Initial (s)	4.0	4.0	4.0	4.0	0.4	0.4	
Minimum Split (s)	20.5	20.5	8.5	20.5	20.5	20.5	
	28.0	28.0	24.0	78.0	54.0	54.0	-
		26.4%	22.6%	73.6%	20.9%	20.9%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	
Lead/Lag			Lag		Lead	Lead	•
Lead-Lag Optimize?			Yes		Yes	Yes	
Recall Mode	None	None	None	Мах	Max	Max	
Act Effct Green (s)	24.0	24.0	20.0	74.0	50.0	50.0	
Actuated g/C Ratio	0.23	0.23	0.19	0.70	0.47	0.47	
v/c Ratio	0.78	1.00	2.42	0.43	1.23	0.01	
Control Delay	53.7	55.1	9 699	7.5	139.7	11.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	53.7	55.1	9 699	7.5	139.7	11.6	
ros	۵	ш	ц.	∢	ш	ω	
Approach Delay	54.6			293.8	139.1		
Approach LOS	٥			L	ш		
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Intersection LOS: FICU Level of Service H Cycle Length: 106
Actuated Cycle Length: 106
Natural Cycle: 150
Control Type: Actuated Uncoordinated
Maximum v/c Ratio: 2,42 Intersection Signal Delay, 193.0 Intersection Capacity Utilization 125.4% Analysis Period (min) 15 Intersection Summary

Y:040912-Lago De San Marcos (STD)/Analysis/Synchro\01-25-06\NTC-No Proj AM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

Y:/040912-Lago De San Marcds (STD)\Analysis\Synchro\01-25-06\NJC-No Proj AM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Near Term Cumulative w/o Project - PM 5: Melrose Dr & Rancho Santa Fe Rd

Splits and Phases: 5: Melrose Dr & Rancho Santa Fe Rd

Lanes, Volumes, Timings

1/25/2006

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1/25/2006 Lanes, Volumes, Timings	mings					Neg	Near Term Cumulative w/o Project - PM 5: Metrose Dr & Rancho Santa Fe Rd
	4	<i>></i>	•	←	-	7	
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	-
Lane Configurations	*	R. .	r	ŧ	4-	R_	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	9.	0.95	1.00	1.00	
FA		0.850		٠		0.850	
FIt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1770	3539	1863	1583	
Fit Permitted	0.950	,	0.950				
Satd. Flow (perm)	1770	1583	1770	3539	1863	1583	
Satd. Flow (RTOR)		298				95	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Volume (vph)	295	896	487	1127	1079	230	
Adj. Flow (vph)	304	924	502	1162	1112	237	
Lane Group Flow (vph)	304	924	502	1162	1112	237	
Turn Type		Prot	Prot			Perm	
Protected Phases	4	4	5	2	9		
Permitted Phases						9	
Detector Phases	4	4	ഗ	5	9	9	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.5	20.5	8.5	20.5	20.5	20.5	-
Total Split (s)	53.0	53.0	32.0	127.0	95.0	95.0	
Total Split (%)	29.4%	29.4%	17.8%	%9.07	52.8%	52.8%	
Yellow Time (s)	3.5	3,5	3.5	3.5	3.5	3.5	. •
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	-
Lead/Lag			Lag		Lead	Lead	
Lead-Lag Optimize?			Yes		Yes	Yes	
Recall Mode	None	None	None	Max	Max	Max	
Act Effct Green (s)	49.0	49.0	28.0	123.0	91.0	91.0	
Actualed g/C Ratio	0.27	0.27	0.16	0.68	0.51	0.51	
v/c Ratio	0.63	1.43	1.83	0.48	1.18	0.28	
Control Delay	64.4	230.5	423.1	14.2	131.8	15.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	64.4	230.5	423.1	14.2	131.8	15.7	
ros ·	ш	ц.	ıŁ	Φ	ıL	60	
Approach Delay Approach LOS	189.4 F			137.6 F	11. 4. IT		

Control Type: Actuated-Uncoordinated Maximum vic Ratio: 1.83 Intersection Signal Delay: 144.3 Intersection Capacity Utilization 118.9% Analysis Period (min 116.9%) Cycle Length: 180 Actuated Cycle Length: 180 Natural Cycle: 150 Intersection Summary

Intersection LOS: FICU Level of Service H

Y:\040912-Lago De San Marcos (STD)\Analysis\Synchro\\01-25-06\\\VIC-No Proj PM.sy7 040912-Lago De San Marcos Darnell & Associates, Inc.

Y:040912-Lago De San Marços (STD)/Analysis/Synchro\01-25-06\nTC-No Proj PM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

Near Term Cumul	6. San Mar	5
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1/25/2006 Lanes, Volumes, Timings	imings					Z	ear Te	erm Cu 6: San	mulati Marcos	ve w/o	Near Term Cumulative w/o Project-AM 6: San Marcos Blvd & Las Posas Rd	ct-AM sas Rd	
	•	†	<i>></i>	1	1	1	1	-	1	٠	→	7	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBI	SBT	S	
Lane Configurations	*	4₽		*	++	*	*	*	×	*	*	*	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4	4.0	4	4.0	- 4	4	4	. 4	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	4.0	100	1.00	1.00	100	5 6	
F		0.993				0.850			0.850	}	2	0.850	
Fit Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1770	3514	0	1770	3539	1583	1770	1863	1583	1770	1863	1583	
Fit Permitted	0.950			0.950			0.730			0.734)	
Satd. Flow (perm)	1770	3514	0	1770	3539	1583	1360	1863	1583	1367	1863	1583	
Satd. Flow (RTOR)		80				115			52			32	
Headway Factor	1.00	1.00	1.00	1.80	1.00	1 00	1.00	1.00	1.00	1.00	1,00	00	
Volume (vph)	260	1273	9	70	1150	110	45	35	20	90	40	425	
Adj. Flow (vph)	271	1326	62	.73	1198	115	47	36	52	62	42	443	
Lane Group Flow (vph)	271	1388	0	73	1198	115	47	36	52	62	42	443	
Turn Type	Pro			Prot		Perm	Perm		vo+mq	Perm		vo+mq	
Protected Phases	so.	2		-	9			80			4	S	
Permitted Phases						9	∞		89	4		4	
Detector Phases	2	. 5		-	9	ø	80	80	-	4	4	2	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	80	20.5		8.5	20.5	20.5	20.5	20.5	8.5	205	20.5	8.5	
Total Split (s)		9.69	0.0	14.9		52.8	21.5	21.5	14.9	21.5	21.5	31.7	
Total Split (%)		65.7%	%0.0	14.1%			20.3%	20.3%	14.1%	20.3%		29.9%	
Yellow Ime (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3,5	3.5	3.5	
All-Ked IIme (s)	1.0	0.		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lag	Lag		Lead	Lead	Lead			Lead			Lag	
Lead-Lag Optimize?		Yes			Yes	Yes			Yes			Yes	
Recall Mode		C-Max			_	C-Max	Max	Max	None	Max	Max	None	
Act Effct Green (s)	27.7	69.2		9.4	48.8	48.8	17.5	17.5	30.9	17.5	17.5	49.2	
Actuated g/C Ratio	0.26	0.65		60'0	0.46	0.46	0.17	0.17	0.29	0.17	0.17	0.46	
v/c Ratio	0.59	0.60		0.46	0.74	0.15	0.21	0.12	0.10	0.27	0.14	0.59	
Control Delay	30.2	7.4		41.1	24.1	4 9	41.1	38.9	8.1	42.5	39.2	23.2	
Queue Delay	0	0.0		00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Lotal Delay	30.2	7.4		41.1	24.1	4.9	41.1	38.9	8.1	42.5	39.2	23.2	
LOS	ပ	∢ ;		۵	O	∢	۵	۵	∢	O	۵	ပ	
Approach LOS		11.1 B			23.4 C			27.8			26.6		
		r)			>)		

Intersection Summary Cycle Length: 106

Actuated Cycle Length: 106 Offset: 100 (94%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 70

Intersection LOS: B ICU Level of Service C

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\NTC-No Proj AM.sy7 J. Bavos\V Haskell Darnell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Splits and Phases: 6: San Marcos Blvd & Las Posas Rd

Near Term Cumulative w/o Project-AM 6: San Marcos Blvd & Las Posas Rd

Y:040912-Lago De San Marcos (STD)/Analysia/Synchro\01-25-06\NTC-No Proj AM.sy7
J. Bavos/V Haskell
040912-Lago De San Marcos
Damell & Associates, Inc.

anes. Volumes, Timings

1/25/2006

Near Term Cumulative w/o Project - PM 7: San Marcos Bivd & SR-78 EB Ramps

20.5 91.0 0.850 1583 1583 0.0% 50.6% 50.6% 50.6% 20.5 SBT 0 950 100 0 28.1 1681 1681 37.4 D 28.1 20.5 4.0 0.950 1681 0.950 1681 1.00 370 381 191 0.0 SBL 0.48 0.24 0000 1.00 0 NBR 1.00 0.0 NBT 1.00 0.0 5.6° 8 펄 0.0 WBR 0.4 9. 4.0 1510 1510 20.5 89.0 WBT 5085 5085 49.4% 1465 0.950 3433 0.950 3433 0.97 320 330 330 Lead Yes 2787 0.88 2787 1.00 1059 1092 1092 0.0% 32.2% 32.2% 0,33 C-Max C-Max 5085 5085 20.5 1.00 1264 1303 1303 444 0.91 Ť EBT 0.33 1.0 Lag 58.8 45.3 0 0.00 0.000 2 8 0.0 EBL Volume (vph) Adj. Flow (vph) Lane Group Flow (vph) Lead/Lag Lead-Lag Optimize? ane Configurations Satd. Flow (perm) Satd. Flow (RTOR) Fotal Lost Time (s) Act Effct Green (s) Actuated g/C Ratio Minimum Initial (s) Protected Phases Permitted Phases Minimum Split (s) Satd. Flow (prot) Fit Permitted ane Util. Factor Headway Factor Detector Phases All-Red Time (s) Approach Delay rellow Time (s) Control Delay: Queue Delay otal Split (%) Approach LOS otal Split (s) Fit Protected Recall Mode Lane Group otal Delay um Type v/c Ratio

ntersection Summary

Actuated Cycle Length: 180

Offset: 78 (43%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Control Type: Actuated-Coordinated Vatural Cycle: 60

Maximum v/c Ratio: 0.78 Intersection Signal Delay: 33.3 Intersection Capacity Utilization 69.3%

Analysis Period (min) 15

Intersection LOS: C ICU Level of Service C

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\NTC-No Proj PM.sy7 J. Bavos/V Haskeli Darneli & Associates, Inc.

Near Term Cumulative w/o Project - PM 7: San Marcos Blvd & SR-78 EB Ramps A statement of the stat Splits and Phases: 7: San Marcos Blvd & SR-78 EB Ramps Lanes, Volumes, Timings 1/25/2006

040912-Lago De San Marcos Y:040912-Lago De San Marcos (STD)/Analysis/Synchro\01-25-06\NTC-No Proj PM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

Near Term Cumulative w/o Project-AM 8: San Marcos Bivd & SR-78 WB Ramos Lanes, Volumes, Timings 1/25/2006

salina va va valida	7		SOX	k_ :	4.0	0.88	0.850		2787	6	/8/7	23	9	525	597	297	Over	Ŋ		ĸ	40	י רמ	30.3	28.6%	e ur	9 6	Lag	X 4 X	None	26.3	0.25	2 0	7 0	2 0	48.7	2	2	
	-	- 0	200		4.0	3			0	(>		9	0	0	0	,						00															
	٠	Ĉ	100	<u>, , , , , , , , , , , , , , , , , , , </u>	0.4	3		0.950	1770	0.950	2		00.1	8	102	102	Prot	۲		7	0.4	6	16.6	15.7%	3.5	10	Lead	Yes	None	10.9	0.10	950	57 D	200	57.0	ц	1	
	•	. 0	102	•	9 6	0.20		(0	c	>	,	3.5	IJ.	62	0							0.0															
	4	. E	2 4	± 0	7 6	0.00	0.982	,	34/6	3476	5	4 6	00.1	004	455	517		c o		80	4.0	20.5	32.4	30.6%	3.5	0.	Lag	Yes	Max	30.1	0.28	0.52	33.6	0.0	33.6	C	35.4	t (
	•	ă	1	֖֚֚֚֚֡֞֝֓֓֓֓֝֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֡֓֓֡֓֡֓֡֓֓֡֓֡֓	200	ò	0	0.950	240	3433	2	5	9 5	5711	9/7!	12/6	Į.	m		က	4	8.5	49.0			1.0			None	45.0	0.42	0.88	36.2	0.0	36.2			
	4	WAR	1	- 4	-	2 6	0.850	1502	200	1583	100	2 5	9 7	2 ;	2 .	2	vo+mq	~	9	7	4.0	8.5	16.6			1.0	Lead	Yes	None	33.6	0.32	0.21	4.3	00	4.3	<		
	ļ	WBT	444	- 4	6	}		5085	200	5085		5	2 6	2 0	000			٥		9	4.0	20.5	26.7	25.2%	3.5	1.0	Lead	Yes	C-Max	22.7	0.21	0.82	46.8	0.0	46.8	٥	418	? _
	>	WBL		4.0	100				0	0	ı	00	3	o c	0 0	>								%0.0					_									
	<i>></i>	EBR	*	4.0	1.00	0 850	3	1583		1583	216	9	190	216	216	7 7	נ	ŧ	rree				0.0	%0.0						106.0	1.00	0.14	0.5	0.0	0.2	∢		
	†	EBT		4	0			3539		3539		100	511	581	185	2	·	4		2	4.0	20.5	57.0	53.8%	3.5	0			C-Max	93.0	0.50	0.33	7.4	0.0	7.4	∢	11.8	œ
	1	EBL	N.	4.0	0.97		0.950	3433	0.950	3433		1.00	415	472	472	Pro		,	•	٠.	4.0	8.5			3.5	1.0	Lag			50.3	0.25	0.55	22.6	0.0	22.6	ပ		
		Lane Group	Lane Configurations	Total Lost Time (s)	Lane Util. Factor	Fr	Fit Protected	Satd. Flow (prot)	Fit Permitted	Satd. Flow (perm)	Satd. Flow (RTOR)	Headway Factor	Volume (vph)	Adj Flow (vph)	Lane Group Flow (voh)	Turn Type	Protected Phases	Permitted Dhases	Detector Decree	Misses Color Pilases	wirillinum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	reliow lime (s)	All-Red Time (s)	Leau/Lag	Coan-Lay Opinize:	Act City Con- (-)	Act cilct Graen (s)	Actuated g/C Ratio	V/C Katio	Control Delay	Queue Delay	i otal Delay	SO	Approach Delay	Approach LOS

Intersection Summary Cycle Length: 106

Actuated Cycle Length: 106
Offset: 52 (49%), Referenced to phase 2.EBT and 6:WBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum vic Ratio: 0.88

Intersection Signal Delay. 32.6 Intersection Capacity Utilization 75.5% Analysis Period (min) 15

Intersection LOS: C ICU Level of Service D

Lanes, Volumes, Timings 1/25/2006

Near Term Cumulative w/o Project-AM 8: San Marcos Blvd & SR-78 WB Ramps

Splits and Phases: o Journal of e3 Splits and Phases: 8: San Marcos Blvd & SR-78 WB Ramps

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Near Term Cumulative w/o Project - PM 8: San Marcos Blvd & SR-78 WB Ramps

	1	†	<i>></i>	/	ļ	√.	•	←	*	٠	-+	•	
ane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
ane Configurations	ř.	‡	R.		+++	R _	N.	4		*		R.	
otal Lost Time (s)	4.0	4.0	4.0	4.0	4	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
ane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.95	0.95	1.00	1.00	0.88	
E			0.850			0.850		0.973				0.850	
It Protected	0.950						0.950			0.950			
atd. Flow (prot)	3433	3539	1583	0	5085	1583	3433	3444	0	1770	0	2787	
t Permitted	0.950						0.950			0.950			
atd. Flow (perm)	3433	3539	1583	0	5085	1583	3433	3444	0	1770	0	2787	
atd. Flow (RTOR)			9			78		13				86	
eadway Factor	1.00	1.00	1.00	1.00	1 00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
olume (vph)	435	1054	230	0	742	75	867	295	65	170	0	515	
dj. Flow (vph)	453	1098	240	0	. 773	78	903	307	68	177	0	536	
ane Group Flow (vph)	453	1098	240	0	773	78	903	375	0	177	0	536	
um Type	Pro		Free	_	_	vo+mq	Prot			Prot		Over	
rotected Phases	S.	7			9	7	n	60		7		'n	
ermitted Phases			Free			9							
etector Phases	2	2			9	7	ന	Φ		7		2	
inimum Initial (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0		4.0	
inimum Split (s)	8.5	20.5			20.5	8.5	8.5			8.5		8.5	
		97.1	0.0	0.0	47.1	39.8	82.9	43.1	0.0	39.8	0.0	50.0	
		53.9%	%0.0	0.0%	26.2%	22.1%	46.1%	23.9%	%0.0	22.1%	%0.0	27.8%	
	3.5	3.5			3.5	3.5	3.5	3.5		3.5		3.5	
me (s)	1.0	1.0			1.0	1.0	1.0	1.0		1,0		1.0	
	Lag				Lead	Lag		Lead		Lag		Lag	
timize?					Yes	Yes		Yes		Yes		Yes	
		C-Max			C-Max	None	None	Max		None		None	
	46.0	105.8	180.0		55.8	82.9	66.2	39.1		23.1		46.0	
g/C Ratio	0.26	0.59	1.00		0.31	0.46	0.37	0.22		0.13		0.26	
	0.52	0.53	0.15		0.49	0.10	0.71	0.49		0.78		69.0	
ontrol Delay	28.9	5.3	0.2		52.6	5.2	52.0	62.1		87.8		55.7	
ueue Delay	0.0	0.0	0.0		0.0	0.0	0.5	0.0		0.0		0.0	
otal Delay	28.9	5.3	0.5		52.6	5.2	52.4	62.1		97.8		. 22.3	
38	ပ	∢	∢		۵	V	۵	w		Ŀ		ш	
pproach Delay		10.6			48.3			55.3					
pproach LOS		m			۵			W					

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180
Offset: B6 (48%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum vic Ratio: 0.78

Intersection Signal Delay: 38.4 Intersection Capacity Utilization 67.1% Analysis Period (min) 15

Intersection LOS; DICU Level of Service C

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Lanes, Volumes, Timings 1/25/2006

Near Term Cumulative w/o Project - PM 8: San Marcos Blvd & SR-78 WB Ramps

19 of 30 kF → 2.2 Splits and Phases; 8; San Marcos Blvd & SR-78 WB Ramps

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	<i>></i>	>	←	*	\	4		
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations Sign Control Grade		4† Free 0%	41→ Free 0%		Stop 0%			
Volume (veh/h)	15	247	268	5	5	40		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91		•
Hourly flow rate (vph) Pedestrians Lane Width (ft)	16	271	295	5	5	44		
Walking Speed (ft/s) Percent Blockage		`						
Right turn flare (veh) Median type Median storage veh)					None			
Upstream signal (ft) pX, platoon unblocked		418						*
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	300 0 0				466	150		
vCu, unblocked vol	300				466	150		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)	3.1							
tF (s)	2.2				3.5	3.3		
p0 queue free %	98				99	95		·
cM capacity (veh/h)	979				517	870		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB_1			
Volume Total	107	181	196	104	49			
Volume Left	16 0	0	0	-0 -				•
Volume Right cSH	979	0 1700	0 1700	5 1700	44 808			
Volume to Capacity	0.02	0.11	0.12	0.06	0.06			
Queue Length 95th (ft)	1	0.11	0.12	0.00	5			
Control Delay (s)	1.5	0.0	0.0	0.0	9.7			
Lane LOS	Α				A			
Approach Delay (s) Approach LOS	0.5		0.0		9.7 A			
Intersection Summary								
Average Delay Intersection Capacity Ut Analysis Period (min)	ilization		1.0 28.1% 15	IC	CU Leve	of Service)	Α

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040912-Lago De San Marcos

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	٠	_ >	←	*	/	4			:			_
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations Sign Control Grade Volume (veh/h) Peak Hour Factor Hourly flow rate (vph)	30 0.93 32	4↑ Free 0% 288 0.93 310	414 Free 0% 182 0.93 196		Stop 0% 5 0.93	10 0.93						 _
Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh)	JZ	. 310	190		5	11		• ,		. H		
Median type Median storage veh)					None							
Upstream signal (ft) pX, platoon unblocked		417									 .	
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	201 0 0				418	101						
vCu, unblocked vol tC, single (s)	201 4.1	٠.			418 6.8	101 6.9						
tC, 2 stage (s) tF (s) p0 queue free % cM capacity (veh/h)	3.1 2.2 97 1017				3.5 99 545	3.3 99 935						
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1							
Volume Total Volume Left	135	206 0	130 0	71	16			 ·				-
Volume Right cSH	0 1017	0 1700	0 1700	_0 _5 1700	5 11 755							
Volume to Capacity Queue Length 95th (ft) Control Delay (s)	0.03 2 2.3	0.12 0 0.0	0.08 0 0.0	0.04	0.02 2 9.9							
Lane LOS Approach Delay (s) Approach LOS	A 0.9	0.0	0.0	0.0	9.9 A 9.9 A							
Intersection Summary												
Average Delay Intersection Capacity Uti Analysis Period (min)	lization		0.8 27.4% 15	IC	CU Leve	l of Sen	/ice	 	Α			 _

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040912-Lago De San Marcos

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	*	•	4	1	1	4	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations Sign Control Grade Volume (veh/h) Peak Hour Factor Hourly flow rate (vph) Pedestrians	Stop 0% 183 0.93 197	59 0.93 63	44 0.93 47	₹ Free 0%	Free 0% 85 0.93 91	199 0.93 214	
Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type Median storage veh)	None						
Upstream signal (ft) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	347	198	305				- .
vCu, unblocked vol tC, single (s) tC, 2 stage (s)	347 6.4	198 6.2	305 4.1				
tF (s) p0 queue free % cM capacity (veh/h)	3.5 69 626	3.3 92 843	2.2 96 1255				
Direction, Lane #	EB 1	EB 2	NB 1	SB 1			
Volume Total Volume Left Volume Right cSH Volume to Capacity Queue Length 95th (ft) Control Delay (s) Lane LOS Approach Delay (s) Approach LOS	197 197 0 626 0.31 34 13.4 B 12.5	63 0 63 843 0.08 6 9.6 A	101 47 0 1255 0.04 3 3.9 A 3.9	305 0'	-		
Average Delay Intersection Capacity Uti Analysis Period (min)	lization	4	5.5 11.9% 15	ICI	J Level	of Service	ce A

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⁰⁴⁰⁹¹²⁻Lago De San Marcos

	٠	*	4	†	↓	4			
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations Sign Control Grade Volume (veh/h)	ኝ Stop 0% 202	7 ⁴ 56	61	€ 1 Free 0% 65	Free 0% 60	126	. ,""		
Peak Hour Factor Hourly flow rate (vph) Pedestrians	0.89 227	0.89 63	0.89 69	0.89 73	0.89 67	0.89 142		e.	
Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh)									
Median type Median storage veh) Upstream signal (ft) pX, platoon unblocked	None								-
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	348	138	209	٠					
vCu, unblocked vol tC, single (s) tC, 2 stage (s)	348 6.4	138 6.2	209 4.1						
tF (s) p0 queue free % cM capacity (veh/h)	3.5 63 616	3.3 93 910	2.2 95 1362						
Direction, Lane #	EB 1	EB 2	NB 1	SB 1					
Volume Total Volume Left Volume Right cSH Volume to Capacity	227 227 0 616 0.37	63 910, 0.07	142 69 0 1362 0.05	209 0 142 1700 0.12	••			,	
Queue Length 95th (ft) Control Delay (s) Lane LOS Approach Delay (s) Approach LOS	42 14.2 B 13.1 B	6 9.2 A	4 4.0 A 4.0	0.0					
Intersection Summary	D	•							
Average Delay Intersection Capacity Ut Analysis Period (min)	ilization		6.8 38.9% 15	IC	U Leve	of Servi	ice	A	

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1/25/2006 Near Term Cumulative w/o Project-AM (AWSC at Lake San Marcos/San Marino)
HCM Unsignalized Intersection Capacity Analysis 10: Lake San Marcos Dr & San Marino Dr

)	•	•	†	1	4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR		÷	٠		
Lane Configurations	ሻ	7		स	1 >						
Sign Control	Stop			Stop	Stop						
Volume (vph)	183	59	44	50	85	. 199					
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93					
Hourly flow rate (vph)	197	63	47	54	91	214					
Direction, Lane #	EB 1	EB 2	NB 1	SB 1							
Volume Total (vph)	197	63	101	305							
Volume Left (vph)	197	0	47	Ö							
Volume Right (vph)	0	63	. 0	214		*	•				
Hadj (s)	0.53	-0.67	0.13	-0.39							
Departure Headway (s)	6.0	4.8	5.1	4.4							
Degree Utilization, x	0.33	0.08	0.14	0.37							
Capacity (veh/h)	570	707	660	782							
Control Delay (s)	10.7	7.0	9.0	9.9				*			
Approach Delay (s)	9.8		9.0	9.9							
Approach LOS	Α		Α	. A		-					
Intersection Summary											
Delay			9.7		 -						
HCM Level of Service			Α								
Intersection Capacity Util	ization	4	11.9%	IC	U Leve	of Servi	ce		A		
Analysis Period (min)			15				` \	-	7.		

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040912-Lago De San Marcos
Darnell & Associates, Inc.

	٠	•	4	†	+	4		***************************************			
Movement	EBL	EBR	NBL	NBT	SBT	SBR	•				
Lane Configurations Sign Control Volume (vph) Peak Hour Factor Hourly flow rate (vph)	Stop 202 0.89 227	56 0.89 63	61 0.89 69	र्स Stop 65 0.89 73	\$\frac{1}{5}\$ Stop 60 0.89 67	126 0.89 142					
Direction, Lane #	EB 1	EB 2	NB 1	SB 1							
Volume Total (vph) Volume Left (vph) Volume Right (vph) Hadj (s) Departure Headway (s) Degree Utilization, x Capacity (veh/h) Control Delay (s) Approach Delay (s) Approach LOS	227 227 0 0.53 5.9 0.37 583 11.1 10.2 B	63 0 63 -0.67 4.7 0.08 727 6.9	142 69 0 0.13 5.1 0.20 666 9.4 9.4 A	209 0 142 -0.37 4.5 0.26 748 9.1 9.1 A						-	
Intersection Summary Delay HCM Level of Service Intersection Capacity Util Analysis Period (min)	ization	3	9.7 A 88.9% 15	IC	U Level	of Serv	ice		A	 -	

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APPENDIX F

➤ Near Term Cumulative With Project Conditions Analysis Worksheets

Near Term Cumulative + Project-AM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd Lanes, Volumes, Timings 1/25/2006

	•	1	./	/	1	4	1	-	•	٠	→	7
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBS	SBT	SAR
Lane Configurations				*	2.		-	*			4	*
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4	4.0	4,0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ŧ.					0.853							0.850
Fit Protected				0.950			0.950					
Satd. Flow (prot)	0	0	0	1770	1589	0	1770	3539	0	0	3539	1583
Fit Permitted				0.950			0.950					
Satd. Flow (perm)	0	0	0	1770	1589	0	1770	3539	0	0	3539	1583
Satd. Flow (RTOR)		,			127							309
Headway Factor	1.00	1.00	1 00	1.00	1.00	1.00	1.00	1.00	1.00	1,00	100	100
Volume (vph)	0	0	0	814	2	245	447	709	0	0	484	290
Adj. Flow (vph)	0	0	0	866	2	261	476	754	0	0	515	309
Lane Group Flow (vph)	0	0	0	866	266	0	476	754	0	0	515	309
Turn Type				Prot			Prot					Perm
Protected Phases				3	œ		5	2			, G	
Permitted Phases											,	Œ
Detector Phases				es	60		r.	. 2			9	യ
Minimum Initial (s)				4.0	4.0		4.0	4.0			4	4
Minimum Split (s)				8.5	20.5		8.5	20.5			20.5	20.5
Total Split (s)	0.0	0.0	0.0	53.0	53.0	0.0	32.0	53.0	0 0	0.0	21.0	210
Total Split (%)	%0.0	%0.0	%0.0	50.0%	50.0%			50.0%	%0.0			19.8%
Yellow Time (s)				3.5	3.5		3.5	3.5				3.5
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	1.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		None	C-Max			C-Max (-Max
Act Effct Green (s)				49.0	49.0		28.0	49.0			17.0	17.0
Actuated g/C Ratio				0.46	0.46		0.26	0.46			0.16	0.16
v/ċ Ratio				1.06	0.33		1.02	0.46			0.91	0.60
Control Delay				77.4	10.3		78.2	16.5			65.1	10.1
Queue Delay				0.0	0.0		0.0	0.0			0.0	0.0
Total Delay				77.4	10.3		78.2	16.5			65.1	10.1
ros				ш	80		Ш	മ			ш	80
Approach Delay					61.6			40.4			44 4	
Approach LOS					ш			Ω			۵	
Intersection Summary												

Cycle Length: 106 Actuated Cycle Length: 106 Offset: 93 (88%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 110 Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 49.0 Intersection Capacity Utilization 97.8% Analysis Period (min) 15

Intersection LOS: DICU Level of Service F

Lanes, Volumes, Timings 1/25/2006

Near Term Cumulative + Project-AM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

THE SECOND TO SECOND SE Splits and Phases: 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

Y:040912-Lago De San Marqos (STD)/Analysis/Synchro\01-25-06\NTC + Proj AM.sy7
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F - 1

1/25/2006 Lanes, Volumes, Timings	mings						SR-78	Near Term Cumulative + Project - PM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd	umula Ramp 8	live + f Ranch	Project o Santa	Fe Rd
	1	†	/	>	ļ	4	•	—	•	٠	-	7
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				<u>.</u>	43		*	*			*	×
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4	•	4.0	4 0	- 4	4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	0.0	1.00	0.95	100
F					0.853							0.850
Fill Protected		•		0.950			0.950					
Sald. Flow (prot)	0	0	0	1770	1589	0	1770	3539	0	0	3539	1583
Fit Permitted				0.950			0.950					
Sald. Flow (perm)	0	0	0	1770	1589	0	1770	3539	0	0	3539	1583
Satd. Flow (RTOR)					209							431
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Volume (vph)	0	0	0	477	S	245	729	707	0	0	457	405
Adj. Flow (vph)	0	0	0	207	5	261	776	752	0	0	486	431
Lane Group Flow (vph)	0	0	0	507	266	0	776	752	0	0	486	431
Turn Type				Prot			Prot			,		Perm
Protected Phases				c	80		ΥO	2			9	
Permitted Phases												Œ
Detector Phases				n	80		5	. 5			9	9
Minimum Initial (s)				4 0	4.0		4.0	0.4			4	4
Minimum Split (s)				8.5	20.5		8.5	20.5			20.5	20.5
Total Split (s)	0.0	0.0	0.0	69.0	69.0	0.0	78.0	111.0	0.0	0.0	33.0	33.0
Total Split (%)	%0.0	%0.0	%0.0		38.3%		43.3%	u.	%0.0	%00	18.3%	18.3%
Yellow Time (s)				3.5	3.2		3.5				40	3.5
All-Red Time (s)				1.0	1.0		0.1	1.0			0	0
Lead/Lag							Lead				Lad	tag
Lead-Lag Optimize?			-				Yes				Yes	Yes
Recall Mode				None	None		None	C-Max		Ŭ	C-Max	C-Max
Act Effct Green (s)				54.8	54.8		80.9	117.2				32.3
Actuated g/C Ratio				0.30	0.30		0.45	0.65			0.18	0.18
v/c Ratio				0.94	0.42		0.97	0.33			0.77	0.68
Control Delay				87.1	12.3		57.7	2.0			796	11.1
Queue Delay				0.0	0.0		0.0	0.2			0.0	0.0
Total Delay				87.1	12.3		57.7	2.2			79.6	11.1
ros				旺	æ		m	∢,			ш	œ
Approach Delay					61.4			30.4			47.4	
Approach LOS					ш			ပ			<u> </u>	
Intersection Summary												

Actuated Cycle Length: 180 Offset: 96 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.97

Intersection Signal Delay: 42.7 Intersection Capacity Utilization 101.9% Analysis Period (min) 15

Intersection LOS: D ICU Level of Service G

Y:040912-Lago De San Marcos (STD)/Analysis/Synchro\01-25-06\NTC + Proj PM.sy7

J. Bavos/V Haskell Darnell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Near Term Cumulative + Project - PM 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

→ of of other properties and the properties of Splits and Phases: 1: SR-78 WB On Ramp & Rancho Santa Fe Rd

Y:040912-Lago De San Malcos (STD)\Analysis\Synchro\01-25-06\NTC + Proj PM.sy7
J. Bavos\V Haskell
Damell & Associates, Inc.

Near Term Crimilative + Project-AM	MUCHOCOLOGIC CONTRACTOR CONTRACTO	2. SN-70 EB On Kamp & Kancho Santa Fe Rd
1/25/2006	Lanes Volumes Timings	

	1	1	/	-	ţ	1	•	•	•	٠	-	•
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBI	NBA	NRR	S.	FRY	d
Lane Configurations		43	K.K					*	1		3	200
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	0.4	4.0	4.0	4.0	4	- 4 - C	4
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	-	1.00	0.95	9
ָדָּי ַ			0.850						0			
FIt Protected		0.953								0.950		
Satd. Flow (prot)	0	1775	2787	0	0	a	C	3539	1583		3530	C
Fit Permitted		0.953				•)			_	5	>
Satd. Flow (perm)	0	1775	2787	C	C	_	c	3530	1,523	7,70	0030	C
Satd. Flow (RTOR)			53	,	,	•)	2	_	2	5000	>
Headway Factor	1.00	1.00	1.00	1.00	1 00	1 00	0	5	5 5	0	5	5
Volume (vph)	305	2	725	C	-	?	3	20.0	2.4	2 5	20.7	3
Adj. Flow (vph)	339	9	806	· c	· c	o c	0 0	773	1 1	2 6	020	0 0
Lane Group Flow (vph)	0	345	806	· c	· C	0 0	0 0	773	27.7	0 0	14/0	0
Turn Type	Perm		Perm)	•	•	>	2	5	0 0	0 7	>
Protected Phases		4						(E D	ŗ,	•	
Permitted Phases	4	•	4					V	r	-	۵	
Detector Phases	4	4	4					2	, ,	-	u	
Minimum Initial (s)	4.0	0.4	4.0					4 0	4.0		7	
Minimum Split (s)	20.5	20 5	20.5					20.5	20.00	י נימ	2, 0	
Total Split (s)	43.0	43.0	43.0	0.0	0.0	0.0	0	40.0	40.0	2,5	2 6	Ċ
Total Split (%)			40.6%	%0.0	%00	%0.0		37.7%	37.7%		59.4%	0.0
Yellow Time (s)	3.5	3.5	3.5					. c.	. 6		6 t	2
All-Red Time (s)	1.0	1.0	1.0					9 -	, -	9 6) -	
Lead/Lag								Lao	Lad	ead	,	
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	None	None	None				_	C-Max	C-Max		C-Max	
Act Effct Green (s)		34.3	34.3					44.0	44.0		63.7	
Actuated g/C Ratio		0.32	0.32					0.42	0.42	0.15	0 60	
v/c Ratio		09.0	98.0					0.53	0.58	0.72	0.69	
Control Delay		34.2	41.1					11.9	50	56.0	4.7	
Queue Delay		0.0	0.0					0.0	0.0	0.0	0	
Total Delay		34.2	41.1					11.9	2.9	56.0	4	
TOS		ပ	۵					œ	<	11.	4	
Approach Delay		39.0						80		1	10.7	
Approach LOS		۵						⋖			œ	
Intersection Summary												

Cycle Length: 106

Actuated Cycle Length: 106 Offset: 89 (84%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle: 55

Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.86 intersection Signal Delay: 17.7 intersection Gapacity Unitration 97.8% Analysis Period (min) 15

Intersection LOS: B ICU Level of Service F

Y:\040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\NTC + Proj AM.sy7
J. Bavos\V Haskell
Darnell & Associates, Inc.

Near Term Cumulative + Project-AM 2: SR-78 EB On Ramp & Rancho Santa Fe Rd Splits and Phases: 2: SR-78 EB On Ramp & Rancho Santa Fe Rd Lanes, Volumes, Timings 1/25/2006

Y:040912-Lago De San Malcos (STD)/Analysis/Synchro\01-25-06\NTC + Proj AM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

3 -

1/25/2006 Lanes, Volumes, Timings

Near Term Cumulative + Project - PM 2: SR-78 EB On Ramp & Rancho Santa Fe Rd

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SAR
Lane Configurations		£	R.					*	R	*	*	
Total Lost Time (s)	4.0	4.0	4,0	4.0	4.0	4.0	4.0	4	4	- 0	- 4	4.0
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	9.	0.95	1.00	1.00	0.95	8 6
. די			0.850						0.850			
Fit Protected		0.953								0.950		
Satd. Flow (prot)	0	1775	2787	¢	0	0	0	3539	1583	1770	3539	c
Fit Permitted		0.953	-			1	,)	0.950		•
Satd. Flow (perm)	0	1775	2787	0	0	0	0	3539	1583	1770	3539	c
Satd. Flow (RTOR)			409						468			•
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	100	1.00	1.00
Volume (vph)	385	2	540	0	0	0	0	1091	692	225	739	0
Adj. Flow (vph)	401	2	295	0	0	0	0	1136	721	234	770	· c
Lane Group Flow (vph)	0	406	295	0	0	0	0	1136	721	234	770	· c
Turn Type	Perm		Perm						Perm	Prot	:	,
Protected Phases		4						2		-	Œ	
Permitted Phases	4		4					ı	2	•	•	
Detector Phases	4	4	4					2	٥ ا	•	œ	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4	4	4	
Minimum Split (s)	20 5	20.5	20.5					20.5	20.5	8 5	20.5	
Total Split (s)		59.0	59.0	0.0	0.0	0.0	0.0	82.0	82.0	39.0	121.0	0.0
Total Split (%)		32.8%	32.8%	0.0%	%0.0	0.0%	%0.0	45.6%	45.6%		67.2%	%0.0
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5		3.5	
All-Red Time (s)	1.0	1.0	1.0					0.1	1.0	10	0	
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	None	None	None				_	C-Max	C-Max	None (C-Max	-
Act Effct Green (s)		46.3	46.3					86.7	86.7		125.7	
Actuated g/C Ratio		0.26	0.26					0.48	0.48	0.19	0.70	
v/c Ratio		0.89	0.55					0.67	0.72	0.68	0.31	
Control Delay		85.7	16.0					3.9	5.9	66.7	18.0	
Queue Delay			0.0					0	0.0	0.0	0.4	
Total Delay		86.8	16.0					3.9	5.9	2 99	18.4	
507		u.	89					∢	∢	ш	α	
Approach Delay		45.7						4.7			29.6	
Approach LOS		۵						∢			O	
Intersection Summary												
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Cycle Length: 180

Actuated Cycle Length: 180
Offset: 34 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum vic Ratio: 0.89

Intersection Signal Delay: 21.6 Intersection Capacity Utilization 101.9% Analysis Period (min) 15

Intersection LOS; C ICU Level of Service G

Y:1040912-Lago De San Marcos (STD)/Analysis/Synchrol01-25-06\NTC + Proj PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Near Term Cumulative + Project - PM 2: SR-78 EB On Ramp & Rancho Santa Fe Rd Splits and Phases: 2: SR-78 EB On Ramp & Rancho Santa Fe Rd Lanes, Volumes, Timings 1/25/2006

Y:040912-Lago De San Marcos (STD)Mnalysis/Synchro\01-25-06\NTC + Proj PM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

F - 4

Near Term Cumulative + Project-AM 3: San Marcos Blvd & Rancho Santa Fe Rd 1/25/2006 Lanes, Volumes, Timings

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	N N	SBI	TRS	S S S
Lane Configurations	ķ	‡	R.	*	44		K.	*	1	*	*	*
Total Lost Time (s)	4.0		4.0	4.0	4.0	4.0	0,4	4	4.0	4.0	. 4 . C	4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.95	-	1,00	0.95	1.00
F. C			0.850		0.995				0.850			0.850
Fit Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3522	0	3433	3539	1583	1770	3539	1583
Fit Permitted	0.950			0.950			0.950			0.950)
Sald, Flow (perm)	3433	3539	1583	3433	3522	0	3433	3539	1583	1770	3539	1583
Sald. Flow (RTOR)			58		4						,	22
Headway Factor	100	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1 00	100	00	1 5
Volume (vph)	285	720	77	471	1055	35	198	531	720	6	707	3.00
Adj. Flow (vph)	310	783	84	512	1147	38	215	577	783	98	768	467
Lane Group Flow (vph)	310	783	84	512	1185	0	215	577	783	86	768	467
Turn Type	Prot		vo+mq	Prot			Pro		70+wo	d		9 4
Protected Phases		4	'n	m	80			,	5 "	5 -	. "	704
Permitted Phases			4)	•	, ,	-	0	- 0
Detector Phases	. 7	4	5	က	œ		5	0	4 (*)	-	ď	0 1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4 0	4 0	4 0	4	- A
Minimum Split (s)	8.5	20.5	8.5	8.5	20.5		8	20.5	8.5	, 00 , 00	20.5	e ur
Total Spirt (s)	17.0	29.0	13.0	33.0	45.0	0.0	13.0	28.0	33.0	16.0	31.0	17.0
Total Split (%)	16.0%	27.4%	12.3%	31.1%	42.5%	%0.0	12.3%	26.4%	31.1%	15 1%	29 2%	16.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3,5		3.5	3.5	5		2 6	ָ קיני
All-Red Time (s)	1.0	1.0	1.0	10	1.0		10		5 0	, -		
Lead/Lag	Lag	Lag	Lag	Lead	Lead		Lag	Lead	Lead	90	2 0	2 6
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Ýes		Zes.	Yes	Yes	Y 4	× 4	5 4
Recall Mode	None	None	None	None	None			C-Max	None		C-Max	S CON
Act Effct Green (s)	148	27.0	36.0	27.0	39.2			24.0	51.0		27.0	45 B
Actuated g/C Ratio	0.14	0.25	0.34	0.25	0.37		0.08	0.23	0 48	0 11	0.25	0.43
//c Ratio	0.65	0.87	0.15	0.59	0.91		0.74	0.72	0.95	0.49	0.85	0.67
Control Delay	50.9	50.3	8	23.1	33.3		479	30.7	43.2	50.4	44.2	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Fotal Delay	50.9	50.3	5.8	23.1	33.3		47.9	30,7	43.2	50.4	44.2	26.7
50.5	۵	۵	∢	ပ	ပ		۵	U	۵	۵	٥	C
Approach Delay		47.3			30.2			393			38.5	
Approach LOS		۵			ပ			Ω			۵	
Intersection Summary												
						ĺ						

Cycle Length: 106

Actuated Cycle Length: 106 Offset: 50 (47%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle: 90 Control Type: Actuated-Coordinated Maximum vic Ratio: 0.95

Intersection Signal Delay: 38.1 Intersection Capacity Utilization 79.5% Analysis Period (min) 15

Intersection LOS: D ICU Level of Service D

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\NTC + Proj AM.sy7
J. Bavos\V Haskell
Darnell & Associates, Inc.

Near Term Cumulative + Project-AM 3: San Marcos Blvd & Rancho Santa Fe Rd Splits and Phases: 3: San Marcos Blvd & Rancho Santa Fe Rd Lanes, Volumes, Timings 1/25/2006

Y:040912-Lago De San Marcos (STD)/Mnalysis/Synchro\01-25-06\NTC + Proj AM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

F - 5

1/25/2006 Lanes, Volumes, Timings

Near Term Cumulative + Project - PM 3: San Marcos Blvd & Rancho Santa Fe Rd

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBN	ä	SBT	ago
Lane Configurations	**	₹	*-	!			N. N.	**	PC.	*	*	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4		4	4	4.0	4.0
Cane Util. Factor	0.97	0.95	1.00			0.95	0.97		1.00		0.95	1.00
			0.850		0.993				0.850			0.850
Fit Protected	0.950			_			0.950					
Satd. Flow (prot)	3433	3539	1583	3433	3514	0	3433	3539	1583	1770	3539	1583
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3514	0	3433	3539	1583	1770	3539	1583
Satd. Flow (RTOR)			55		e				111	:	,	5
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1 00	100
Volume (vph)	735	715	142	602	1385	65	163	1118	214	145	615	605
Adj. Flow (vph)	742	722	143	608	1399	99	165	1129	216	146	621	611
Lane Group Flow (vph)	742	722	143	608	1465	0	165	1129	216	146	621	611
Tum Type	Prot	_	pm+ov	Prot			Prot		Perm	Prot	,	VO+mo
Protected Phases	7	4	S	С	00		5	2		-	ဖ	7
Permitted Phases			4						2			. د
	7	4	2	3	89		5	2	2	-	9	^
_	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
(s)	8.5	20.5	8.5		20.5		8.5	20.5		20.5	20.5	8.5
	37.0	58.9	15.6		68.0	0.0	15.6	54.5		20.5	59.4	37.0
	20.6%	32.7%	8.7%		37.8%	%0.0	8.7%	30.3%			33.0%	20.6%
	3.5	3.5	3.5	3.5	3.5		3.5	3,5	3.5		3.5	3.5
ime (s)	1,0	1.0	1.0	1.0	0.		0.	0.	1.0		1.0	1.0
	Lag	Lag	Lead	Lead	Lead		Lead	Lead	Lead	Lag	Lag	Lag
timize?	Yes	Yes	√es	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
	None	Nane	None	None	None		None	C-Max	C-Max	Max	C-Max	None -
	33.0	59.5	74.9	37.5	64.0		11.4	50.5	50.5	16.5	55.6	98.6
g/C Ratio	0.18	0.33	0.42	0.21	0.36		0.06	0.28	0.28	0.09	0.31	0.49
	-18	0.62	0.21	0.85	1.17			1.14	0.41	06 0	0.57	0.78
_	156.8	54.0	21.8	68.2	136.3			117.1	24.7	-	46,9	29.7
<u>.</u>	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
l Delay	156.8	54.0	21.8	68.2	136.3		100.6	117.1	24.7	117.7	46.9	29.7
ros	ш.	۵	ပ	ш	u		ıL	ц.	ပ	LL.	۵	ပ
Approach Delay		98.6			116.4			102.1			46.8	
Approach LOS		LL.			ш.			Œ			۵	
Intersection Summan												

Intersection Summary Cycle Length: 180

Actuated Cycle Length: 180 Offset: 90 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle: 150

Control Type. Actuated-Coordinated Maximum vic Ratio: 1.18 Intersection Signal Delay. 94.2 Intersection Capacity Utilization 113.6% Analysis Period (min) 15.

Intersection LOS: FICU Level of Service H

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\NTC + Proj PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

3: San Marcos Blvd & Rancho Santa Fe Rd Near Term Cumulative + Project - PM Lanes, Volumes, Timings 1/25/2006

Characteristics and Control of Co Splits and Phases: 3: San Marcos Blvd & Rancho Santa Fe Rd

Y:040912-Lago De San Mar**é**os (STD)\Analysis\Synchro\D1-25-06\NTC + Proj PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Near Term Cumulative + Project-AM Lanes, Volumes Timinus 1/25/2006

Near Term Cumulative + Project-AM 4: Lake San Marços Dr & Rancho Santa Fe Rd

Lanes, Volumes, Timings

1/25/2006

PRESENTATION OF THE PROPERTY O

Splits and Phases: 4: Lake San Marcos Dr & Rancho Santa Fe Rd

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Intersection Summary Cycle Length: 106

Actuated Cycle Length: 106 Offset: 91 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum vic Ratio: 0.67 Intersection Signal Delay: 12.0 Intersection Capacity Utilization 59.7% Analysis Period (min) 15

Intersection LOS: B ICU Level of Service B

Y:040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\NTC + Proj AM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

Y.040912-Lago De San Marcos (STD)Mnalysis/Synchro\01-25-06\NTC + Proj AM.sy7
J. Bavos/V Haskell
040912-Lago De San Marcos
Darnell & Associates, Inc.

F - 7

Lanes, Volumes, Timings 1/25/2006

Near Term Cumulative + Project - PM 4: Lake San Marcos Dr & Rancho Santa Fe Rd

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												:	:																							
	SBT	*	- 0	0.95			3539		3539		1.00	1212	1262	1262		Œ	•	Œ	. 4	20.5	69.5	77 2%	3.5	1.0	:		C-Max	20.6	0.78	0.45	1.5	0.0	5.	•	6.6	1
٠	SBL	*	4	1.00		0.950	1770	0.950	1770		1,00	151	157	157	Prot	-	-	-	4.0	8	15.0			0	Lad	Yes	_		0.12	0.73	47.3	0.0	47.3	۵		
•	NBR		4.0	0.95			0		0		1.00	162	169	0							0.0	0.0%														
- -	NBT	± +	4	0.95	0.985		3486		3486	. 21	1.00	1454	1515	1684		2	1	7	4.0	20.5	54.5	%9.09	3.5	1.0	Lead	Yes	C-Max	55.6	0.62	0.78	16.5	0.0	16.5	63	16.5	c
√.	WBR	*	4.0	1.00	0.850		1583		1583	94	1.00	8	94	94	Perm		80	œ	4.0	20.5	20.5	22.8% E	3.5	1.0			None C	11.4	0.13	0.33	10.9	0.0	10.9	മ		
>	WBL	y	4.0	1.00		0.950	1770	0.950	1770		1.00	109	114	114		80		80	4.0	20.5	20.5	22.8%	3.5	1.0			None	11.4	0.13	0.51	43.9	0.0	43.9	۵	29.0	¢
	Lane Group	Lane Configurations	Total Lost Time (s)	Lane Util. Factor	U.	Fit Protected	Satd. Flow (prot)	Fit Permitted	Satd. Flow (perm)	Satd. Flow (RTOR)	Headway Factor	Volume (vph)	Adj. Flow (vph)	Lane Group Flow (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phases	Minimum Initial (s)	Minimum Split (s)	Total Split (s)		rellow Time (s)	All-Red Time (s)	-ead/Lag	-ead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	/c Ratio	Sontrol Delay	Jueue Delay	otal Delay	SO	Approach Delay	SO L dagard

Intersection Summary

Actuated Cycle Length: 90 Offset: 19 (21%). Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type. Actuated-Coordinated Maximum v/c Ratio: 0.78 intersection Signal Delay: 13.0 intersection Capacity Unitration 69.8% Analysis Period (min) 15

Intersection LOS: B ICU Level of Service C

Y:040912-Lago De San Marcos (STD)/Analysis/Synchrot01-25-06\nTC + Proj PM.sy7 J. Bavos/V Haskell Darneil & Associates, Inc.

Near Term Cumulative + Project - PM 4: Lake San Marcos Dr & Rancho Santa Fe Rd Splits and Phases: 4: Lake San Marcos Dr & Rancho Santa Fe Rd Lanes, Volumes, Timings 1/25/2006

Y:040912-Lago De San Márcos (STD)/Analysis/Synchro\01-25-06\NTC + Proj PM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

Near Term Cumulative + Project-AM 1/25/2006 Lanes, Volumes Timinas

1/25/2006

Lanes Volumes Ti	Timings						5: Melrose Dr & Rancho Santa Fe Rd
	1	/	•	←	→	*	
Lane Group	EBL	EBR	NBL	NBT	SBI	SBR	
Lane Configurations	y -	R.	*	*	*	×	
Total Lost Time (s)	4.0	4.0	.0	4	4.0	4	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	
FI		0.850				0.850	
Fit Protected	0,950		0.950				
Satd. Flow (prot)	1770	1583	1770	3539	1863	1583	
Fit Permitted	0.950		0.950				
Satd. Flow (perm)	1770	1583	1770	3539	1863	1583	
Satd. Flow (RTOR)		345				4	
Headway Factor	1.00	1.00	1.00	1.00	1.00	100	
Volume (vph)	305	605	784	1030	1049	· (C	
A.dj. Flow (vph)	314	624	808	1062	1081	ω	
Lane Group Flow (vph)	314	624	808	1062	1081	9	
Tum Type		Prot	Prot			Perm	
Protected Phases	4	4	3	2	9		
Permitted Phases					1	Œ	
Detector Phases	4	4	45	2	9	y (C	
Minimum Initial (s)	4.0	4.0	4	4.0	4.0	4.0	
Minimum Split (s)	.50.5	20.5	8.5	20.5	20.5	20.5	
Total Split (s)	28.0	28.0	24.0	78.0	54.0	54.0	
	26.4%	26.4%	22.6%	73.6%	50.9%	20.9%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	
Lead/Lag			Lag		Lead	Lead	-
Lead-Lag Optimize?			Yes		Yes	Yes	
Recall Mode	None	None	None	Max	Max	Max	
Act Effct Green (s)	24.0	24.0	20.0	74.0	50.0	50.0	
Actuated g/C Ratio	0.23	0.23	0.19	0.70	0.47	0.47	
v/c Ratio	0.78	1.00	2.42	0.43	1.23	0.01	
Control Delay	53.7	55.1	9.699	7.5	141.1	10.8	
Oueue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
. Total Delay	53.7	55.1	9.699	5.5	141.1	10.8	
SOJ	٥	ш	Œ	∢	LL.	6	
Approach Delay	54.6			293.6	140.4		
Approach LOS	Ω			L	u_		

Intersection Summary
Cycle Length: 106
Actuated Cycle Length: 106
Natural Cycle: 150
Control Type: Actuated Uncoordinated

Maximum v/c Ratio: 2.42

7

Intersection Signal Delay, 193.3 Intersection Capacity Utilization 125.5% Analysis Period (min) 15

Intersection LOS: FICU Level of Service H

+ of Splits and Phases: 5: Melrose Dr & Rancho Santa Fe Rd Lanes, Volumes, Timings

Near Term Cumulative + Project-AM 5: Metrose Dr & Rancho Santa Fe Rd

Y:040912-Lago De San Marcos (STD)Wnalysis\Synchro\01-25-06\\01C + Proj AM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Y:040912-Lago De San Marcos (STD)Vanalysis/Synchro\01-25-06\NTC + Proj AM.sy7
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Darnell & Associates, Inc.

9

Lanes, Volumes, Timings 1/25/2006

Near Term Cumulative + Project - PM 5: Melrose Dr & Rancho Santa Fe Rd

1583 . 231 238 238 Perm 20.5 95.0 52.8% 1863 1863 1080 1113 29.4% 29.4% 17.8% 70.6% 52.8% 132.3 111.7 132.3 4.0 3539 3539 1.00 1130 1165 1165 137.4 14.3 1.00 0.950 1770 0.950 1770 1.00 487 502 502 Prot 423.1 423.1 1583 1.00 . 1583 53.0 298 1.00 896 924 924 Prot 230.5 230.5 0.950 1770 1770 9. 0.950 8 189.3 -ane Group Flow (vph) Satd. Flow (perm) Satd. Flow (RTOR) Headway Factor Lane Configurations Total Lost Time (s) _ead/Lag _ead-Lag Optimize? Actuated g/C Ratio Act Effct Green (s) Protected Phases Minimum Initial (s) Permitted Phases Yellow Time (s) All-Red Time (s) Sald. Flow (prot) Minimum Split (s) Lane Util. Factor Defector Phases Total Split (s) Total Split (%) Approach Delay Adj. Flow (vph) Control Delay Queue Delay Fit Protected Volume (vph) Approach LOS Fit Permitted Recall Mode

um Type

Intersection Summary Cycle Length: 180

Fotal Delay

Actuated Cycle Length: 180

Natural Cycle: 150

Control Type: Actuated-Uncoordinated Maximum v/c Ratio; 1.83

Intersection Capacity Utilization 119.0% Analysis Period (min) 15 Intersection Signal Delay: 144.2

Intersection LOS: FICU Level of Service H

1/25/2006

Lanes, Volumes, Timings

Near Term Cumulative + Project - PM 5: Melrose Dr & Rancho Santa Fe Rd

Splits and Phases: 5: Melrose Dr & Rancho Santa Fe Rd

Y:0040912-Lago De San Mafcos (STD)/Analysis/Synchro\01-25-06\NTC + Proj PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

Y:040912-Lago De San Marcos (STD)Mnalysis\Synchro\01-25-06\NTC + Proj PM.sy7
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Darnell & Associates, Inc.

- 10

Lanes, Volumes, Timings 1/25/2006

Near Term Cumulative + Project-AM 6: San Marcos Blvd & Las Posas Rd

SBT

1.00 1.00

1.00

1.00 0.850

4.0 EBR

> 4.0 0.95 0.993 3514

> > 1.00

Lane Configurations Total Lost Time (s) Lane Util. Factor

WBT

WBL

/25/2006

anes, Volumes, Timings

Near Term Cumulative + Project-AM 6: San Marcos Blvd & Las Posas Rd

Splits and Phases: 6: San Marcos Blvd & Las Posas Rd

V 04 Z15× V 24

1583

1863

0.950

1583

1863 1863

1583

0.950 1770 0.950

0.730

3539 1.00

3514

1770 0.950 1770 1.00 261

Satd. Flow (prot) Fit Permitted

Frt Fit Protected

1367

1583 52 1.00

1.08

1.00 1.00

1199 1199

1274 1327 1389

.ane Group Flow (vph)

Adj. Flow (vph)

Volume (vph)

Protected Phases Permitted Phases

urn Type

1.00

Satd. Flow (RTOR) Headway Factor

Satd. Flow (perm)

443

pm+ov 50 52 52

Perm 45 47 47

4 4 4

1.00 60 62 62

38 38 38

Offset: 100 (94%), Referenced to phase 2:EBT and 6:WBT, Start of Green Control Type: Actuated-Coordinated ntersection Signal Delay: 18.6 Actuated Cycle Length: 106 Aaximum v/c Ratio: 0.74 ntersection Summary Sycle Length: 106 latural Cycle: 70

Intersection LOS: B . ICU Level of Service C intersection Capacity Utilization 71.5% Analysis Period (min) 15

040912-Lago De San Marcos Y:\040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\NTC + Proj AM.sy7 J. Bavos\V Haskell Darnell & Associates, Inc.

Y.1040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\INTC + Proj AM.sy7 J. Bavos/V Haskell 040912-Lago De San Marcos

Darnell & Associates, Inc.

F 11 -

ead/Lag ead-Lag Optimize?

Yellow Time (s) All-Red Time (s)

None

None C-Max C-Max

C-Max 69.2

0.65

0.26 0.59

Actuated g/C Ratio

Control Delay

//c Ratio

Queue Delay Total Delay

Act Effet Green (s)

Recall Mode

48.8

48.8

20.3% 29.9% 3.5

20.3%

14.1%

%0.0 0.0

29.9% 65.7%

9.69

Detector Phases Minimum Initial (s)

Minimum Split (s)

Total Split (s) Total Split (%)

20.5

4.0

0.59 23.2 0.0 23.2

39.2 0.0 39.2

0.0

38.9

24.1

Approach Delay

Approach LOS

Lanes, Volumes, Timings

Near Term Cumulative + Project - PM 6: San Marcos Blvd & Las Posas Rd

1/25/2006

Lanes, Volumes, Timings

Near Term Cumulative + Project - PM 6: San Marcos Bivd & Las Posas Rd

Splits and Phases: 6: San Marcos Blvd & Las Posas Rd

1863 1583 32.9% 1.00 16.6% 44.8 69 1339 0.950 1.00 60 65 65 Perm 16.6% 4.0 1.00 0.850 1583 1863 1583 1,00 1863 6.0 1.00 1770 0.732 1364 1.00 Perm Perm 1583 4.0 1.00 0.850 37 1.00 55 59 59 59 50.5% 3539 1.00 1201 1291 15.3% 50.5% C-Max 1770 1770 0.950 1.00 65 70 70 Prot . %0.0 0.95 8 0.0 50 54 0.95 3522 1.00 1469 1580 1634 20.5 122.6 32.9% 68.1% 129.5 Lag Yes None C-Max 13.0 0.64 1770 59.3 0.950 9 Lead Yes Volume (vph) Adj. Flow (vph) Lane Group.Flow (vph) Lane Configurations Total Lost Time (s) Intersection Summary Lead/Lag Lead-Lag Optimize? Satd. Flow (perm) Satd. Flow (RTOR) Winimum Initial (s) Act Effct Green (s) Actuated g/C Ratio Protected Phases Permitted Phases Total Split (s)
Total Split (%)
Yellow Time (s)
All-Red Time (s) Minimum Split (s) Lane Util. Factor Satd. Flow (prot) Detector Phases Headway Factor Approach Delay Approach LOS Control Delay Queue Delay Fit Permitted FIt Protected Recall Mode otal Delay urn Type I/c Ratio

59.3

29 1.00 266 286 286

Actuated Cycle Length: 180 Offset: 157 (87%), Referenced to phase 2:EBT and 6:WBT, Start of Green Cycle Length: 180

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 24.6 Intersection Capacity Utilization 69.5% Analysis Period (min) 15

Intersection LOS: C ICU Level of Service C

040912-Lago De San Marcos Y:\040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-05\NTC + Proj PM.sy7 J. Bavos\V Haskell Darnell & Associates, Inc.

: :

Y:040912-Lago De San Marcos (STD)Wnalysis/Synchro\01-25-06\NTC + Proj PM.sy7 J. Bavos/V Haskell Darnell & Associates, Inc.

F 12 _

Near Term Cumulative + Project-AM 1/25/2006

Lanes, Volumes, Timings	mings		Ì				7: 5	San Mar	cos Blv	d&SR-	7: San Marcos Blvd & SR-78 EB Ramps	damps
	1	1	<i>></i>	/	ţ	√	1	←	*	٦	-	7
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+++	R.	*	***					*	+	×
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	40	4.0	4.0	4.0	4.0	4	- 4
Lane Util, Factor	1.00	0.91	0.88	0.97	0.91	100	00	8	100	0.95	0.95	2 2
			0.850					3	9	;		0.850
Fit Protected				0.950						0.950	0.950	
Satd, Flow (prot)	0	5085	2787	3433	5085	0	0	0	0	1681	1681	1583
Fit Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	5085	2787	3433	5085	0	0	0	Ó	1681	1681	1583
Satd. Flow (RTOR)			966									n
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1,00	1.00	1.00	1.00	00
Volume (vph)	0	817	926	180	1931	0	0	0	0	255	0	440
Adj. Flow (vph)	0	851	966	188	2011	0	0	0	0	266	0	458
Lane Group.Flow (vph)	0	851	966	188	2011	0	0	0	0	133	133	458
Turn Type			Perm	Prot						Perm	,	Perm
Protected Phases		2		++	9						. 4	
Permitted Phases			2							4		4
Detector Phases		7	2	-	ဖ					4	4	4
Minimum Initial (s)		4.0	4.0	4.0	4.0					4.0	4.0	0.4
Minimum Split (s)		20.5	20.5	8.5	20.5					205	20.5	20.5
Total Split (s)	0.0	40.9	40.9	14.8	55.7	0.0	0.0	0.0	0.0	50.3	50.3	50.3
Total Split (%)	%0.0	38.6%	38.6%		52.5%	0.0%	%0.0	0.0%	-		47.5%	17.5%
Yellow Time (s).		3.5	3.5	3.5	3.5					3,5	3.5	35
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	0
Lead/Lag		Lead	Lead	Lag								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Max	C-Max		C-Max					Max	Max	Max
Act Effct Green (s)		36.9	36.9	10.8	51.7					46.3	46.3	46.3
Actuated g/C Ratio		0.35	0.35	0.10	0.49					0.44	0.44	0.44
v/c Ratio		0.48	0.62	0.54	0.81					0.18	0.18	99.0
Control Detay		24.4	9.5	41.6	18.9					19.1	19.1	29.1
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		24.4	9.5	41.6	18.9					19.1	19.1	29.1
ros		ပ	∢	۵	89					മ	Ω	O
Approach Delay		16.2			20.9						25.4	
Approach LOS		8			ပ						ပ	

Intersection Summary
Cycle Length: 106
Actuated Cycle Length: 106
Offset: 45 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay, 19.8 Intersection Capacity Utilization 71.2% Analysis Perlod (min) 15

Intersection LOS: B ICU Level of Service C

Y:040912-Lago De San Marcos (STD)/Analysis/Synchro\01+25-06\nTC + Proj AM.sy7
J. Bavos/V Haskell
Darnell & Associates, Inc.

Near Term Cumulative + Project-AM 7: San Marcos Blvd & SR-78 EB Ramps $\downarrow \downarrow 0.2$ $\downarrow \downarrow 0.4$ $\downarrow Splits and Phases: 7: San Marcos Blvd & SR-78 EB Ramps os Statement of the second of Lanes, Volumes, Timings 1/25/2006

Y:040912-Lago De San Marchs (STD)/Analysis/Synchrol01-25-06NTC + Proj AM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

F - 13

Near Term Cumulative + Project - PM 7: San Marcos Bivd & SR-78 EB Ramps 1/25/2006 Lanes, Volumes, Timings

	1	Ť	<i>></i>	1	ţ	4	•	•	•	<u>ب</u>	>	•
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	ž	ART	g	ã	700	
Lane Configurations		***	K.	K	***					ł	֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	אַ
Total Lost Time (s)	4.0	4.0	4.0	•	- 4	4.0	4	4	40	4	± 5	• •
Lane Util. Factor	1.00	0.91	0.88	0.97	0.91	00.	100	100	-	-	9.0	, 6
FT			0.850					2	2		5	0.00
Fit Protected				0.950						0.050	010	0.650
Satd. Flow (prot)	0	5085	2787	3433	5085	0	0	0	0		1681	1583
FIT Permitted				0.950						0 950	0.950	
Sald. Flow (perm)	o	5085	2787	3433	5085	0	C	c	_	1881	1691	1602
Sald. Flow (RTOR)			720))	•)	2	000	2001
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1 00	1 00	0	<u> </u>
Volume (vph)	0	1264	1060	320	1466	0	C				9 0	3 1
Adj. Flow (vph)	0	1303	1093	330	1511	0	0	0	0	381) C	525
Lane Group Flow (vph)	0	1303	1093	330	1511	0	0	0	0	191	190	572
I um I ype			Perm	Prot						Parm		Day of
Protected Phases		2	•	-	9					5	*	
Permitted Phases			7		•					•	•	•
Detector Phases		2	,	٠						3 .	•	4
Minimum Initial (s)		4	4 0	- 0	•					4	4	4
Minimum Solit (s)		, ה ה	7 0	j 0	4 6					4,0	4	40
Total Solit /ct	ć	2 0	0 0	0 6	20.5					20.5	20.5	20.5
Total Split (%)			28.0	0.15	89.0	0.0	0.0	0.0	0.0		91.0	91.0
Vellow Time (a)	80.0		32.2%	17.2%	49.4%	%0.0	%0.0	%0.0	0.0%	20.6%	20.6%	20.6%
All God Time (s)		3.5	3.5	ω ri	3.5					3.5	3.5	3.5
All-Ked Lime (s)		O.	1.0	0.	1.0					1.0	0	1.0
Lead/Lag		Lag	Lag	Lead								•
Lead-Lag Optimize?			Yes	Yes								
Recall Mode	0		C-Max	None	C-Max					Max	Max	Max
Act Effct Green (s)		58.8	58.8	22.2	85.0					87.0	87.0	87.0
Actuated g/C Ratio		0.33	0.33	0.12	0.47					0.48	8	9 6
v/c Ratio		0.78	0.78	0 78	0.63					0.74	2 6	7.0
Control Delay		45.2	6	79.9	27.2					28.4	200	2 5
Queue Delay		0.0	0.0	00	0.0					0 0	70.0	2 6
Total Delay		45.2	6.6	79.9	27.2					20.00	9 6	9 6
TOS		۵	4	Ц.						- (- (2
Approach Detay		29.1		ı	36.6)	,	Þ
Approach LOS		Ċ			2						4.0	
		,			3)	
mersection summary												

Actuated Cycle Length; 180 Offset: 78 (43%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 60 Cycle Length: 180

Control Type: Actuated-Coordinated Maximum vic Ratio: 0.78 Intersection Signal Delay: 33.3 Intersection Capacity Utilization 69.4% Analysis Period (min) 15

Intersection LOS: C ICU Level of Service C

Y 1040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\NTC + Proj PM.sy7

J. Bavos/V Haskell
Damell & Associates, Inc.

Near Term Cumulative + Project - PM 7: San Marcos Blvd & SR-78 EB Ramps 3.24 (1878) (187 Splits and Phases: 7: San Marcos Blvd & SR-78 EB Ramps 9° . Lanes, Volumes, Timings 1/25/2006

Y:040912-Lago De San Marcos (STD)/Analysis/Synchro\u01-25-06\u01b1\u01b1 + Proj PM.sy7
J. Bavos/V Haskell
Damell & Associates, Inc.

Lanes, Volumes, Timings 1/25/2006

Near Term Cumulative + Project-AM 8: San Marcos Blvd & SR-78 WB Ramps

Near Term Cumulative + Project-AM 8: San Marcos Blvd & SR-78 WB Ramps

Splits and Phases: 8: San Marcos Blvd & SR-78 WB Ramps

Lanes, Volumes, Timings

1/25/2006

→ _{9.2}

	1	1	<i>></i>	\	1	1	•	← —	*	۶		*	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	ă	TRIN	OBIN.	ā	. Las	0	
Lane Configurations	¥.	ŀ	R		***	*	×	1		100	2	201	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4	- 0.	4	- 4 ‡ C	0.4	ر 4	4	ور (د ور ج	
Lane Util. Factor	0.97	_	1.00	1.00	0.91	1.00	0.97	0.95	0.95	1.00	5 6	0.88	
			0.850			0.850		0.982				0.850	
Fit Protected	0.950						0.950			0.950			
Sald. Flow (prot)	3433	3539	1583	0	5085	1583	3433	3476	0	1770	0	2787	
Satd Flow (norm)	0.800	0636	,	(0.950			0.950			
Said Flow (PTOD)	? ?	Rocco Co	1583	2	5085	1583	3433	3476	0	1770	0	2787	
Headings Forest	,	,	917			102		14				23	
Volume (inch	00.5	00.	8	1.00	1.00	1.00	1.00	1.00	9.	1.00	1.00	1.00	
Volurine (vpn)	415	512	190	0	783	105	1124	400	55	90	C	525	
Adj. Flow (vph)	472	582	216	0	830	119	1277	455	62	102	0	597	
Lane Group Flow (vph)	472	582	216	0	830	119	1277	517	0	102	0	597	
turn lype	Prot		Free		_	pm+ov	Prot			Prof	,	ا ا	
Protected Phases	2	5			9	7	က	80		7	,	, «	
Permitted Phases			Free			ဖ		,		-		י	
Detector Phases	2	2			9	. ~	ო	60		7		v	
Minimum Initial (s)	0.4	4.0			4.0	4.0	4.0	4.0		40		0 0	
Minimum Split (s)	8.5	20.5			20 5	8.5	8,5	20.5		. 60		i a	
		57.0	0.0	0.0	26.7	16.6	49.0	32.4	00	18.6	0	5 5	
		53.8%	%0.0	0.0%	25.2%	15.7%	16.2%	30.6%	%0.0	15.7%		28.6%	
Yellow Lime (s)	3.5	3.5			3.5	3.5		3.5		ď		7 7	
All-Red Time (s)	1.0	1.0			0.1	1,0	10	10		; -			
Lead/Lag	Lag				Lead	Lead	!	30		2 6		2 6	
Lead-Lag Optimize?	Yes				Yes	Yes		Yes		Y 8		, ray	
Recall Mode		C-Max		O	C-Max	None	None	×		Noon		0 00 N	
Act Effct Green (s)	26.3	53.0	106.0		22.7	33.6	45.0	30.1		10.9		2 2	
Actuated g/C Ratio	0.25	0.50	1.00		0.21	0.32	0.42	0.28		10		200	
v/c Ratio	0.55	0.33	0.14		0.82	0.21	0.88	0.50) (c		2.0	
Control Delay	22.6	7.4	0.2		46.8	4	36.2	33.6		57.0		7 av	
Queue Delay	0.0	0.0	0.0		00	0.0	0.0	0.0		0.0		9	
Total Delay	22.6	7.4	0.2		46.8	4.3	36.2	33.6		57.0		48.7	
ros	ပ	∢	∢		۵	∢	۵	ပ		ш		_	
Approach Delay		11.8			41.8			35.5		J)	
Approach LOS		æ			۵			۵					
Intersection Summary													

Actuated Cycle Length: 106

Offset: 52 (49%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Intersection LOS: C ICU Level of Service D

Y:1040912-Lago De San Marcos (STD)Mnalysis/Synchrol01-25-06\NTC + Proj AM.sy7
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Intersection Signal Delay: 32.6 Intersection Capacity Utilization 75.6% Analysis Period (min) 15 Natural Cycle: 80 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.88

Y:040912-Lago De San Marcoa (STD)/Analysis\Synchro\D1-25-06\NTC + Proj AM.sy7 J. Bavos/V Haskell Damell & Associates, Inc.

15

Near Term Cumulative + Project - PM 8: San Marcos Blvd & SR-78 WB Ramps

TANKS CONTRACTOR OF THE PROPERTY OF THE PROPER

Splits and Phases: 8: San Marcos Blvd & SR-78 WB Ramps

Lanes, Volumes, Timings

1/25/2006

1/25/2006 Lanes. Volumes, Timings	imings						Near 8:8	Near Term Cumulative + Project - PM 8: San Marcos Bivd & SR-78 WB Ramps	umula sos Biv	tive + F	roject 8 wB F	- PM
	4	†	1	>	↓	✓.	1	_	1	٨	-	7
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBi	NBT	NBR	SBL	SBT	888
Lane Configurations	F	‡	K		444	R.	K.	4		×		R
otal Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4	4	4.0	. 0	0	- 4
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0	0.95	1.08	00.	0.88
٠	,		0.850			0.850		0.973				0.850
FII Protected	0.950						0.950			0.950		
Sald. Flow (prot)	3433	3539	1583	0	5085	1583	3433	3444	0	1770	0	2787
r II Permitted	0.950						0.950			0.950		i
Said. Flow (perm)	3433	3539	1583	0	5085	1583	3433	3444	0	1770	0	2787
Satd. Flow (KIOR)			9			78		13				8
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9	8 6
Volume (vph)	435	1054	230	0	742	75	868	295	65	170	0	515
Adj. Flow (vph)		1098	240	0	773	78	904		68	177	C	536
Lane Group Flow (vph)	_	1098	240	0	773	78	904		0	177	0	536
lurn lype	Prot		Free			pm+ov	Pro			o to		Sec. C
Protected Phases	'n	2			9	^	Э	හ		^		, v
Permitted Phases			Free			9						,
Detector Phases	Ω	7			9	7	n	œ3		7		ď
Minimum Initial (s)	4.0	4.0			4.0	4.0	4.0	4		. 0		, ,
Minimum Split (s)	8.5	20.5			20.5	8.5	8.5	2		8		i c
Total Split (s)		97.1	0.0	0.0	47.1	39.8	82.9	43.1	0.0	39.8	0	5.0
Total Split (%)		53.9%	0.0%	%0.0	26.2%		46.1%	Ň	%0.0	22 1%		27 R%
Yellow Time (s)	3.5	3.5		٠	3.5	3.5	3.5			3.5		, c
All-Red Time (s)	0.	1.0		•	10	1.0	1.0	1.0		1.0	٠.	0.0
Lead/Lag	Lag				Lead	Lag		Lead		Lag		Lag
Lead-Lag Optimize?		:			Yes	Yes		Yes		Yes		Υes.
Recall Mode		C-Max		_	C-Max	None	None	Max		None		None -
Act Effet Green (s)	46.0	105.8	180.0		55.8	82.9	66.2	39.1		23.1		46.0
Actuated g/C Ratio	0.26	0.59	8		0.31	0.46	0.37	0.22		0.13		0.26
v/c Ratio	0.52	0.53	0.15		0.49	0.10	0.72	0.49		0.78		69 0
Control Delay	28.9	5.3	0.2		52.6	5.2	52.0	62.1		97.8		55.7
Gueue Delay	0.0	0.0	0.0		0.0	0.0	0.5	0.0		0.0		0.0
otal Delay	28.9	5.3	0.5		52.6	5.2	52.5	62.1		8.76		55.7
LOS	S	∢ .	∢		۵	∢	Ω	ш		ű.		w
Approach Delay Approach LOS		10.6 B			48.3 C			55.3				
:					1			J				

Intersection Summary

Cycle Length: 180 Actuated Cycle Length: 180 Offset: 86 (48%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 38.4 Intersection Capacity Utilization 67.1% Analysis Period (min) 15

Intersection LOS; D ICU Level of Service C

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16

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	*		•	*	+ -	•	*	†	<i>*</i>	1	1	4
Movement	EBL			WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control Grade		ብት Free 0%		. %	↑ ↑ Free 0%			Stop 0%	-		Stop 0%	0011
Volume (veh/h)	15			. 0	268	5	15	0	1	5	0	40
Peak Hour Factor	0.91	0.91			0.91	0.91	0.91	0.91	0.91	0.91 *		0.91
Hourly flow rate (vph) Pedestrians Lane Width (ft)	16	271	4	0	295	5	16	0	1	5	0	44
Walking Speed (ft/s) Percent Blockage												
Right turn flare (veh) Median type Median storage veh)								None			None	
Upstream signal (ft) pX, platoon unblocked		417									- .	
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	300 0 0			276 0 0	-		498	607	138	467	606	150
vCu, unblocked vol	300			276			498	607	138	467	606	450
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	150 6.9
tC, 2 stage (s)	3.1			3.1				0.0	0.0	1.0	0.0	0.9
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
o0 queue free % cM capacity (veh/h)	98 979			100 988	***		96 427	100 403	100 885	99 472	100 403	95 870
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1			> .,		
/olume Total	152	140	0	196	104	18	49	·	•			
/olume Left	16		, 0	0	0	16	5					
Volume Right	0	4	0	0	5	1	44					
SH /olume to Canacity	979	1700	1700	1700	1700	441	795					
/olume to Capacity Queue Length 95th (ft)	0.02	0.08	0.00	0.12	0.06	0.04	0.06					
Control Delay (s)	1 1.1	0 0.0	0	0	0	3	5					
ane LOS	· A	0.0	0.0	0.0	0.0	13.5	9.8					
Approach Delay (s)	0.6		0.0			B	Α					
Approach LOS	0.0		0.0		٠	13.5 B	9.8 A					
ntersection Summary						J	, ,					
Average Delay ntersection Capacity Uti Analysis Period (min)	lization		1.3 29.6% 15	IC	U Leve	of Serv	/ice		A			

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O40912-Lago De San Marcos

O40912-Lago De San Marcos

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	•		*	*	•			T		*	¥	*
Movement	EBL	EBT	EBR			WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control Grade Volume (veh/h) Peak Hour Factor Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s)	30 0.93 32	475 Free 0% 288 0.93 310	15 0.93	2 0.93 2	Free 0% 182 0.93	5 0.93 5	7 0.93 8	Stop 0% 0 0.93	0 0.93 0	5 0.93 5	Stop 0% 0 0.93	10 0.93 11
Percent Blockage Right turn flare (veh) Median type Median storage veh) Upstream signal (ft) pX, platoon unblocked		. 417		•				None			None -	
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	201 0 0			326 0 0			495	588	163	422	593	101
vCu, unblocked vol tC, single (s) tC, 2 stage (s)	201 4.1 3.1			326 4.1 3.1		,	495 7.5	588 6.5	163 6.9	422 7.5	593 6.5	101 6.9
tF (s) p0 queue free % cM capacity (veh/h)	2.2 97 1017			2.2 100 970			3.5 98 440	4.0 100 406	3.3 100 853	3.5 99 502	4.0 100 403	3.3 99 935
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total Volume Left Volume Right cSH Volume to Capacity Queue Length 95th (ft) Control Delay (s) Lane LOS Approach Delay (s) Approach LOS Intersection Summary	187 32 0 1017 0.03 2 1.7 A 0.9	171 0, 16 1700 0.10 0 0.0	2 0 970 0.00 0 8.7 A 0.1	130 0 0 1700 0.08 0 0.0	71 0 5 1700 0.04 0	8 8 0 440 0.02 1 13.3 B 13.3 B	16 5 11 727 0.02 2 10.1 B 10.1 B					
Average Delay Intersection Capacity Util Analysis Period (min)	ization	2	1.0 27.8% 15	10	CU Leve	l of Serv	rice		A			

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	فر	*	4	†	+	1	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations Sign Control Grade Volume (veh/h)	Stop 0% 184	7 59	44	Free 0% 50	Free 0% 85	199	
Peak Hour Factor Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s)	0.93 198	0.93 63	0.93. 47	0.93 54	0.93 91	0.93 214	
Percent Blockage Right turn flare (veh) Median type Median storage veh)	None						
Upstream signal (ft) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	347	198	305				
vCu, unblocked vol tC, single (s) tC, 2 stage (s)	347 6.4	198 6.2	305 4.1				
tF (s) p0 queue free % cM capacity (veh/h)	3.5 68 626	3.3 92 843	2.2 96 1255				
Direction, Lane #	EB 1	EB 2	NB 1	SB 1			
Volume Total Volume Left Volume Right cSH Volume to Capacity Queue Length 95th (ft) Control Delay (s)	198 198 0 626 0.32 34 13.4	63 0 63 843 0.08 6 9.6	101 47 0 1255 0.04 3 3.9	305 0 214 1700 0.18 0			
Lane LOS Approach Delay (s) Approach LOS	B 12.5 B	Α	A 3.9	0.0			
Intersection Summary Average Delay Intersection Capacity Util Analysis Period (min)	lization		5.5 32.0% 15	ICI	J Level	of Servi	ice A

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	<i>y</i>	*		1	+	4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR					
Lane Configurations Sign Control Grade Volume (veh/h)	Stop 0% 202	ام 56	61	4 Free 0% 65	Free 0% 60						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	127 0.89					
Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s)	227	63	69	73	67	143					
Percent Blockage Right turn flare (veh) Median type	Nama										
Median storage veh) Upstream signal (ft) pX, platoon unblocked	None.							es es			
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol	349	139	210					·			
tC, single (s) tC, 2 stage (s)	6.4	6.2	4.1						•		
tF (s) p0 queue free % cM capacity (veh/h)	3.5 63 616	- 3.3 93 909	2.2 95 1361								
Direction, Lane #	EB 1	EB 2	NB 1	SB 1				. •		**	
Volume Total Volume Left Volume Right cSH	227 227 0 616	63 63 909	142 69 0 1361	210 0 143 1700					,		
Volume to Capacity Queue Length 95th (ft) Control Delay (s) Lane LOS	0.37 42 14.2 B	0.07 6 9.3 A	0.05 4 4.0 A	0.12 0 0.0							
Approach Delay (s) Approach LOS	13.1 B		4.0	0.0							
Intersection Summary	· · · · · · · · · · · · · · · · · · ·										
Average Delay Intersection Capacity Uti Analysis Period (min)	lization	3	6.8 38.9% 15	ICI	J Level	of Serv	ice		A		

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1/25/2006 Near Term Cumulative + Project-AM (AWSC at Lake San Marcos/San Marino)
HCM Unsignalized Intersection Capacity Analysis

10: Lake San Marcos Dr & San Marino Dr

	≯	•	4	1	↓	4			
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations Sign Control	ኝ Stop	74		4 Î Stop	\$ Stop			-	
Volume (vph) Peak Hour Factor	184 0.93	59 0.93	44	50	85	199			
Hourly flow rate (vph)	198	63	0.93 47	0.93 54	0.93 91	0.93 214			
Direction, Lane #	EB 1	EB 2	NB 1	SB 1					
Volume Total (vph) Volume Left (vph) Volume Right (vph) Hadj (s) Departure Headway (s) Degree Utilization, x Capacity (veh/h) Control Delay (s) Approach Delay (s) Approach LOS	198 198 0 0.53 6.0 0.33 570 10.7 9.8 A	63 0 63 -0.67 4.8 0.08 707 7.0	101 47 0 0.13 5.1 0.14 659 9.0 9.0 A	305 0 214 -0.39 4.4 0.37 781 10.0 10.0 A				*	_
Intersection Summary Delay HCM Level of Service Intersection Capacity Util Analysis Period (min)	ization	4	9.8 A 2.0% 15	IC	U Level	of Servi	ce	A	

Y:\040912-Lago De San Marcos (STD)\Analysis\Synchro\01-25-06\AWSC at San Marino\NTC + Proj AM-AWSC.sy7
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	۶	7	1	†	+	4			
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations Sign Control Volume (vph) Peak Hour Factor	Stop 202 0.89	56 0.89	61 0.89	4 Stop 65 0.89	\$top 60 0.89	127 0.89			
Hourly flow rate (vph) Direction, Lane #	227 EB 1	63 EB 2	69 NB 1	73	67	143	-		
Volume Total (vph) Volume Left (vph) Volume Right (vph) Hadj (s) Departure Headway (s) Degree Utilization, x Capacity (veh/h) Control Delay (s) Approach Delay (s) Approach LOS	227 227 0 0.53 5.9 0.37 583 11.1 10.2 B	63 0 63 -0.67 4.7 0.08 727 6.9	142 69 0 0.13 5.1 0.20 666 9.4 9.4 A	SB 1 210 0 143 -0.37 4.5 0.26 748 9.1 9.1 A					-
Intersection Summary Delay HCM Level of Service Intersection Capacity Util Analysis Period (min)	ization		9.7 A 38.9% 15	IC	U Level	of Sen	vice	Α	

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APPENDIX G

All-Way Stop-Control Warrants for Lake San Marcos /San Marino
 TAC Report of February 23, 2001

Existing Conditions All-Way Stop-Control Warrants for Lake San Marcos /San Marino TRAFFIC WARRANT FOR ALL-WAY STOP CONTROLLED INTERSECTION – ADOPTED FROM MUTCD 2003 EDITION

Intersection: San Marcos Drive Son Marino Orive Condition/Year: Existing

I) SUPPORT

	Support Criteria		
Is the volume of traffic on the intersecting roads approximately equal?	Four Hour Volume on Major Street (both approaches)	Four Hour Volume on Minor Street (both approaches)	(YES)/NO
	1008	932	
2. Is there is a safety concern associated with pedestrians, bicyclists, and all other users?	YES / NO	Comments:	
3. Can all-way stop control be useful as a safety measure at the intersection?	YES/NO	Comments:	

II) GUIDANCE A. Traffic Signal Warrant

			- C T	Y C 111		
				Tic Signal Warrant (ゴー	terim Con	fi + 100)
Street	Approach	Арр	roach mes		v Volume	
			>=2	8-94 10-11:11-12 11-2	12-3:3-4	14-5:5-6
San Marino	Major Street (Total of both approaches)	/		338 192 219 190	189 185	256 229
Lake San Murus	Minor Street (Highest Approach)		1	232 171 187 188	178 217	248 235
				nicular Volume		
Street	Approach	1 '.'	roach nes	Houriy	Volume	
		ı	>=2	8-9 Am : 3-4 PM	1 4-5PM	5-6 PM
San Marino	Major Street (Total of both approaches)			338 185	256	229
La Ke San Muriu	Minor Street (Highest Approach)			232 217	248	235
		Peak H	our Ve	iicular Volume		
Street	Approach	Appr Lai	oach nes	Hourly	Volume	
		l	>=2	7:45 - 8:45 AM	4-5 P	m
San Marino	Major Street (Total of both approaches)			346	268	
Lake Son Main	Minor Street (Highest Approach)		V	207	232	
	ehicular Volume Warrant Sa	istied'	-	YES	(10)	·····
Four Hour V	ehicular Volume Warrant Sat	istied ¹		YES		*
Peak Hour V	ehicular Volume Warrant Sat	istied ¹		YES		
l See attached traffic	signal warrant					
	·	······································				

B. Crash History

		Cr	ash History	
Intersection	No. of Crashes	No. of Years	No. of crashes correctable by All-Way Stop	No. of crashes' correctable by All- Way Stop >= 5 in 12 month period
San Marino / Lake Sa		3	0	YES(NO
Such crashes include ri	gitt-and left turn o	collisions and righ	t-angle collisions	

Intersection: Lake San Marcos D. / San Marino Dr

Condition/Year: Existing

C. Minimum Volumes

	1. Eight	Hour	Vehicu	lar Vol	ume on	Major	Stree	t			
C+	\				Hourly	Volume				Aver-	>= 300
Street	Approach	8-9	10-11	11-12	1-2	2-3	3-4	r1-2	5-6	age	vph
San Marino	Major Street (Total of both approaches)	338	192	219	196	189	185	256	229	225	YES/ (NO)
vph = vehicles per hou	ur			•							

	2. Eight F	lour Ve	hicular	r, Pede	strian	and B	icycl e	Volum	e on N	linor S	Street		
	.	Travel		Hourly Volume							>=	Ave.	
Street	Approach	Mode	8-9.	10-11	11-12	1-2	2-3	3-4	4-5	5-6	Ave.	200 uph	Delay to Veh. Tr.
		Veh.	232	131	१८२	188	178	217	248	235	207		F.11
Lake	Minor Street (Total of both	Ped.								<u> </u>		(YES/)	Am. 11.7 pm - 12.0
San Marcas	approaches)	Cyc.				<u> </u>						· NO.	
Bing		Total									14.		

uph = units per hour. Veh. Tr. = Vehicular Traffic; 'Average delay to minor-street vehicular traffic should be at least 30 seconds per vehicle during the highest hour.

	3. 85 th Pe	rcentile Approach S	peed of Major Stre	et		
		85th Percentile	> 40 mph or 63	If YES is any of the minimum vehicular warrant satisfied		
Street	Approach	Approach Speed of Major Street	km/h	70 % of 300 vph	70 % or 200 uph	
Com Sin	Major Street (Total of both approaches)	25	YES/ (NO)	YES/ NO	YES/ NO	

D. No. of Criteria Satisfied to 80 percent

	No. of Criteria Sat	istied to 80 percent	
Intersection	В	CI	C2
San Marino / Lake San Marcos	YES(NO)	YES(NO)	YES (NO)

III) OPTION

	Option Criteria		
	Criterion	Criterion Satisfied	Comments
А.	Need to control left-turn conflicts	YES/NO	
В.	Need to control vehicle/ pedestrian conflicts near locations that generate high pedestrian volumes	YES/NO	
C.	Locations where a road user, after stopping, cannot see conflicting traffic and is not able to reasonably safely negotiate the intersection unless conflicting cross traffic is also required to stop; and	YES/NO	
D.	An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where all-way stop control would improve traffic operational characteristics of the intersection.	YES / NO	
Crite	erion C.3 is excluded from this condition.		

All-Way Stop Control 100 % Warrant Satisfied:	YES	(NO)
All-Way Stop Control 70 % Warrant Satisfied:	YĘS	(NO)

Traffic Count Summary for: Monday, September 20, 2004

Time	Minor Street: Lake San Marcos Drive	Major Stree	t: San Marino Drive	
A 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Eastbound Traffic	Est. Northbound Traffic	Southbound Traffic	T.4 I
Midnight - 1:00 AM	4	3		Total
1:00 AM - 2:00 AM	4	1	9	12
2:00 AM - 3:00 AM	7	1	3	4
3:00 AM - 4:00 AM	4	1	2	3
4:00 AM - 5:00 AM	4	4	3	4
5:00 AM - 6:00 AM	10	14	11	15
6:00 AM - 7:00 AM	48	54	45	59
7:00 AM - 8:00 AM	130		170	224
8:00 AM - 9:00 AM	232	74	231	304
9:00 AM - 10:00 AM	170	82	255	338
10:00 AM - 11:00 AM	171	56	174	[74
11:00 AM - 12:00 PM	187	61	192	192
12:00 PM - 1:00 PM		70	219	219
1:00 PM - 2:00 PM	168	131	175	175
2:00 PM - 3:00 PM	188	143	190	190
3:00 PM - 4:00 PM	178	142	189	189
4:00 PM - 5:00 PM	217	139	185	185
5:00 PM - 6:00 PM	248	111	148	256
	235	98	131	229
6:00 PM - 7:00 PM	152	85	113	198
7:00 PM - 8:00 PM	104	86	114	200
8:00 PM - 9:00 PM	55	44	58	
9:00 PM - 10:00 PM	49	30	40	102
0:00 PM - 11:00 PM	29	16		70
1:00 PM - Midnight	. 19	5	21 7	<u>37</u>

Page 4C-5

December 2000

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Canaiti	an A—Winim	um Venic	liar \olume:			
Number of lanes for moving traffic on each approach	Venicles cer (total or		-Venicles per hour on higher-volume minor-suset approach (one direction only)			
Maior Street Minor Street	100%*	80%	70%	100%	<u> </u>	70%
1	500 600 600 500	700 780 780 700	350 420 420 350	150 150 200 200	120 120 160 160	105 140 140

	Candition	3—interrupti	an of Ca	בוי בטסטתמח	-		
	Number of lanes for noving patific on each approach		המטר כת : מסטר פסטר	Venicles per nour on higher-volume minor-subset approach (one direction only)			
Maior Street	Minor Street	100%	80%°	70%	100%	30%	70%
1	1	750 900 900 (50)	600 720 720 - 600	625 630 630 525	75 75 100	60 60 30 30	63 53 70 70

¹ Запо тапітит поилу чашта.

May be used tyrein the major-street speed exceeds 70 km/n (40 mon) or in an isolated community with a acquilation of

Street		Approach Lanes		Hourly Volume							
	Approach	Опе	Two or More	8-9 AM	10-11 Am	11- 128A	1-2 pm	2-3 pm	3-4 PM	4-5 PM	5-6 PM
San Marino Dr	Major Stress (Total of both Approaches)	V		338	192	219	190	189	185	256	229
Lake San Marcus	Minor Street (Highest Approach)		/	232	171	F81	188	178	217	248	235

Conditon A - Satisfied?

No Major Street Minor Street

100% 20

80% 100 Yes

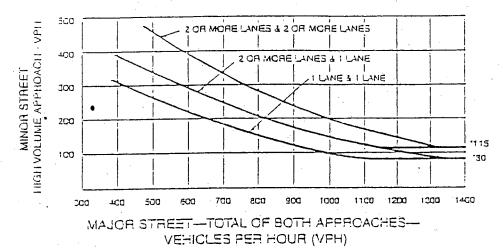
Condition B - Satisfied? 80% 100%

Major Street Minor Street

70%

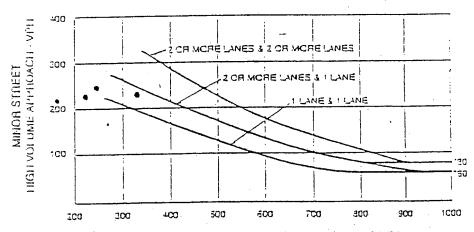
Used for communation of Conditions A and B after adequate that of other remedial measures.

Figure 4C-1. Warrant 2, Four-Hour Venicular Volume



Note: 115 you applies as the lower threshold volume for a minor-street approach with two or more lanes and 30 you applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2. Four-Hour Vehicular Volume (70% Factor)
(COMMUNITY LESS THAN 18,300 POPULATION OR ABOVE 70 km/h (40 mm) ON MAJOR STREET)



MAJOR STREET—TOTAL OF BOTH APPROACHES— VEHICLES PER HOUR (VPH)

Yes No Note: 30 von applies as the lower threshold volume for a minor-street approach with two or more lanes and 50 von applies as the lower threshold volume for a minor-street approach with one lane.

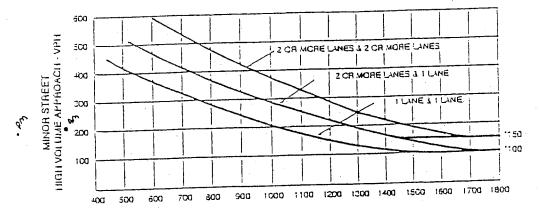
		Appro	ach Lanes	Houriv Volume			
Street	Approach	One	2 or More	8-9 Am	3-4pm	4-5 PM	5-6 PM
San Marino Dr	Major Street - (Total of both Approaches)	V		338	185	256	229
	Minor Street - (Highest Approach)		V	232	217	248	235

No

Yes

Figure 4C-3. Warrant 3, Peak Hour

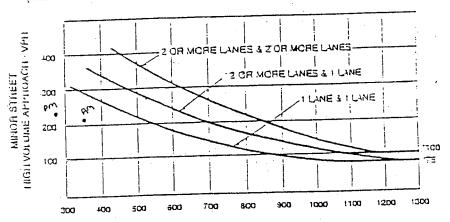
Lake San Marcos/ San Marino Dr



MAJOR STREET—TOTAL OF BOTH APPROACHES— VEHICLES PER HOUR (VPH)

*Note: 150 von applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 von applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-1. Warrant 3, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mon) ON MAJOR STREET)



MAJOR STREET—TOTAL OF BOTH APPROACHES— VEHICLES PER HOUR (VPH)

"Note: 100 voh applies as the lower threshold volume for a minor-street

approach with two or more lanes and 75 von applies as the lower

		Appn	each Lanes		Hourly Volume
Street	Approach	One	2 or More	7:35- 8:360	4-5 pm
	Major Street - (Total of both Approaches)	1		346	268
	Minor Street - (Highest Approach)		1/.	207	232

Near Term Cumulative Conditions All-Way Stop-Control Warrants for Lake San Marcos /San Marino

TRAFFIC WARRANT FOR ALL-WAY STOP CONTROLLED INTERSECTION – ADOPTED FROM MUTCD 2003 EDITION

Intersection: Lake Son Marcos Dr/Son Marino

Condition/Year: Near Term Cumulative

I) SUPPORT

	Support Criteria			
l. Is the volume of traffic on the intersecting roads approximately equal?	Four Hour Volume on Major Street (both approaches)	Four Hour Volume on Minor Street (both approaches)	YES// NO	
	8F11	993		
2. Is there is a safety concern associated with pedestrians, bicyclists, and all other users?	YES / NO	Comments:		
3. Can all-way stop control be useful as a safety measure at the intersection?	YES / NO	Comments:		

II) GUIDANCE A. Traffic Signal Warrant

	Sui	mmary	of Traf	Vic Sign	1 13/2	<i>(</i>	7-1		2 2 2 1 3	-	
			lour Ye				7040	rim C	111600	•4)	
Street	Approach	App	roach ines		y ordine		Hourty	Volum			
	<u> </u>		>=2	8-9	10-16	111-12	11-2.	2-3	іЗ-ч	! 4-5	:5-6
San Marino.	Major Street (Total of both approaches)	*		344		294				264	234
Lake Sm Micos	Minor Street (Highest Approach)		/	247		199				264	251
		Four H	our Vel	icular \	olume						
Street	Approach	Аррі	roach nes	Hourly Volume					··		
	Maior Start (Table 2)		>=2	8-9		1 3-4		1 4-5		1 5-6	
San Marino	Major Street (Total of both approaches)	. /		344 331		 	264		1_		
Luke San Marcas	Minor Street (Highest Approach)		/	247 231		1	264		251		
		Peak H	our Veh	icular V	olume						
Street	Approach	Appr Lar	oach				Hourly	Volume	:		
<u> </u>			>=2	नःपऽ	-6:45	AM	4	-5 P	m		
San Marino	Major Street (Total of both approaches)	V		3	360			230	3		
Lake Samuros	Minor Street (Highest Approach)		/		225	-		245	1		
Eight Hour V	enicular Volume Warrant Sat	istied!					YES	(10)	 		·
Four Hour V	ehicular Volume Warrant Sati	stied'		YES, ((i))							
Peak Hour V	ehicular Volume Warrant Sati	stīed!		YES (NO)							
1 See attached traffic	signal warrant										

B. Crash History

Intersection No. of No. of Year	No. of crashes' correctable No. of crashes' correctable by All
CIABILES 1	by All-Way Stop Way Stop >= 5 in 12 month period
Such crashes include right-and left turn collisions and r	YE NO

Intersection: Lake San Marcos / San Marino Dr

Condition/Year: Near Term Comula five

C. Minimum Volumes

-	1. Eight	Hour	Vehicu	lar Vol	ume or	Majo	Stree	t			
Street Approac	American	Hourly Volume								Aver-	>= 300
	Approach	8-9	10-11	11-12	1-2	1-3	3-4	4-5	5-6	age	vph
San Marino	Major Street (Total of both approaches)	344	258	294	340	338	331	264	234	300	YES) NO
voh = vehicles per ho	ur ·										

	2. Eight F	Iour Ve	hicula	r, Pede	strian	and B	cycle '	Yolum	e on Y	linor S	Street		
		Travel				Hourly	Volume	:				>=	Ave.
Street	Approach	Mode	8-9	10-11	11-12	1-2	2-3	3-4	4-5	5-6	Ave.	200 uph	Delay to Veh. Tr. 1
		Veh.	247	182	199	200	190	231	264	251	.221		
Lake	Minor Street	Ped.										YES	AM - 120
	(Total of both approaches)	Cyc.					į					NO	Pm - 12.3
Sun Maries	,	Total			÷								. ,2,5

uph = units per hour; Veh. Tr. = Vehicular Traffic; 1. Average delay to minor-street vehicular traffic should be at least 30 seconds per vehicle during the highest hour.

	85th Percentile	> 40 mph or 65	If YES is any of the minimum vehicular warrant satisfied		
	Approach Speed of Major Street	km/h	70 % of 300 vph	70 % ან 200 uph	
San Marino	Major Street (Total of both approaches)	25 =	YES/	YES/ NO	YES/ NO

D. No. of Criteria Satisfied to 80 percent

	No. of Criteria Sat	tisfied to 80 percent	
Intersection	, B	CI .	C2
Lake San Marcas/San Marino	YESINO	(YE\$MO	YES/(VO)

III) OPTION

	Option Criteria	· · · · · · · · · · · · · · · · · · ·
Criterion	Criterion Satisfied	Comments
A. Need to control left-turn conflicts	YES 7 NO	
Need to control vehicle/ pedestrian conflicts n generate high pedestrian volumes	ear locations that YES / NO	
C. Locations where a road user, after stopping, contraffic and is not able to reasonably sately negulaters intersection unless conflicting cross traffic is a and	otiate the	
An intersection of two residential neighborhood (through) streets of similar design and operation where all-way stop control would improve training characteristics of the intersection.	ng characteristics	

All-Way Stop Control 100 % Warrant Satisfied:	YES	NO	-
All-Way Stop Control 70 % Warrant Satisfied:	VF9	NO	

Traffic Count Summary for Near Term Cumulative Conditions

Time	Minor Street: Lake San Marcos Drive	Major Stre	et: San Marino Drive	
	Eastbound Traffic	Est. Northbound Traffic	Southbound Traffic	Total
Midnight - 1:00 AM	4	3	9	
1:00 AM - 2:00 AM	4	1	7	12
2:00 AM - 3:00 AM	7		3	4
3:00 AM - 4:00 AM	4		2	3
4:00 AM - 5:00 AM	4	4	3	4
5:00 AM - 6:00 AM		14	11	15
6:00 AM - 7:00 AM	51	55	46	60
7:00 AM - 8:00 AM	139	75	173	228
8:00 AM - 9:00 AM	247	84	236	311
9:00 AM - 10:00 AM	181	57	260	344
0:00 AM - 11:00 AM	182	62	177	234
1:00 AM - 12:00 PM	199	71	196	258
12:00 PM - 1:00 PM	179	134	223	294
1:00 PM - 2:00 PM	200	146	179	313
2:00 PM - 3:00 PM	190	 	194	- 340
3:00 PM - 4:00 PM	231	145	193	338
4:00 PM - 5:00 PM	264	142	189	331
5:00 PM - 6:00 PM	251	113	151	264
6:00 PM - 7:00 PM	162	100	134	234
7:00 PM - 8:00 PM	102	87	115	202
8:00 PM - 9:00 PM	59	88	116	204
9:00 PM - 10:00 PM		45	59	104
0:00 PM - 11:00 PM	52	31	41	72
1:00 PM - Midnight	31	16	21	37
Troot ter - tylidingill	20	5	7	12

December 2000

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

	Canditi	on →—Winimi	um Venic	niar Volume			
Number o	flanes for 1 each approach	Venicles per (total of t	hour on a	-Venicles per nour on higher-volume			
Maior Street	Minor Street	100%1	80%	70%	100%	90%°	.70%°
1	1 1 2 or more 2 or more	500 600 600	180 180 180 100	350 420 420 350	150 150 200 200	120 120 160 160	105 105 140 141)

	Canaition	3—'nterruptio	an af Ca	ndinuous īra	пic		
	of lanes for neach accordance	Venicles per (total of :	מסנה מסנר מסנר מסנר	major street	wingt	ner-vot street 3	u quià) cologet nuie nont qu
Maior Street	Minor Street	100%	80%°	70%	100%	30%	70%
1	1 1	750 900 900 750	600 720 720 600	525 530 630 525	73 75 100	60 60 30 30	53 53 70 70

May be used when the major-street speed exceeds 70 km/n (±0 mon) or in an isolated community with a dequiation of less man 10,000.

		Approach Lanes		Hourly Volume								
St ree t	Street Approach	One	Two or More	8-9	10-11	11-12	1-2	2-3	34	4-5	5-6	
San Marino	Major Street (Total of both Approaches)	/		344	258	294	340	338	331	264	234	
Lake San Mares	Minor Street (Highest Approach)		· por	247	182	199	200	190	231	264	251	

Condition A - Satisfied?

100% Major Street Minor Street

80%

70% No

Conditon B - Satisfied? 80%

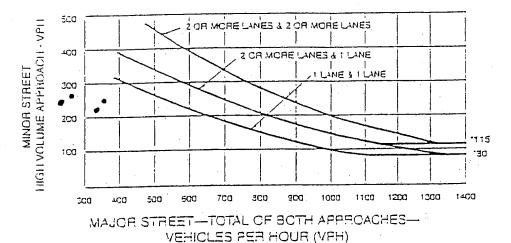
Major Street Minor Street

70%

Used for commission of Conditions λ and β after scientists that of other remedial measures.

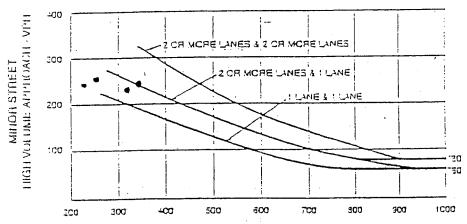
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume

Near Term Comulative



*Note: 115 von applies as the lower threshold volume for a minor-street approach with two or more lanes and 30 von applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2. Four-Hour Vehicular Volume (70% Factor)
(COMMUNITY LESS THAN 10.100 POPULATION OR ABOVE 70 km/h (40 mm) ON MAJOR STREET)



MAJOR STREET—TOTAL OF BOTH APPROACHES— VEHICLES PER HOUR (VPH)

Yes
Satisfied?

No

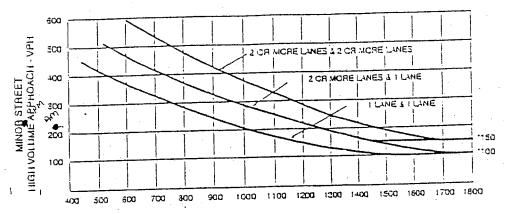
Note: 30 with applies as the lower threshold volume for a minor-street approach with two or more lanes and 50 von applies as the lower threshold volume for a minor-street approach with one lane.

Street	Approach	Approach Lanes		Hourly Volume			
		One	2 or More	8-9	3-4	4-5	5-6
	Major Street - (Total of both Approaches)	V		344	331	264	234
	Minor Street - (Highest Approach)		V	247	231	264	251

Yes

Figure 4C-3. Warrant 3, Peak Hour

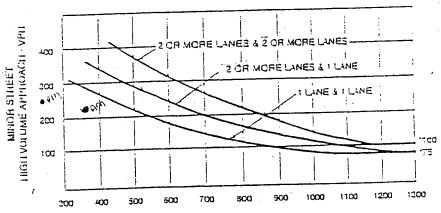
Near Term Cumulative



MAJOR STREET—TOTAL OF BOTH APPROACHES— VEHICLES PER HOUR (VPH)

*Note: 150 von applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 von applies as the lower threshold volume for a minor-street approach with one lane.

Figure 1C-4. Warrant 3, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mon) ON MAJOR STREET)



MAJOR STREET—TOTAL OF BOTH APPROACHES— VEHICLES PER HOUR (VPH)

Note: 100 von applies as the lower threshold volume for a minor-street

Satisfied?	Yes	Andrei: 100 von applies as the lower internation applies as me lower approach with two or more lanes and 75 von applies as me lower meshold volume for a minor-street approach with one lane.						
			Approach Lanes		Hourly Volume			
St	rest	Approach	One	2 or More	MA	pm		
	· ·	Major Street - (Total of both Approaches)	1		360	2.30		
		Minor Street - (Highest Approach)			225	247		

TAC Report of February 23, 2001

SAN DIEGO COUNTY TRAFFIC ADVISORY COMMITTEE

COMMITTEE REPORT OF:

February 23, 2001

Item 5-D

SUPERVISORIAL DISTRICT:

5.

SUBJECT:

All-Way Stop Control

LOCATION:

Lake San Marcos Drive and San Marino Drive, LAKE

SAN MARCOS (Thos. Bros. 1128-C3)

INITIATED BY:

Torn Achter, President, Lake San Marcos Community

Association, 1145 San Marino Drive, Lake San Marcos,

CA 92069

REQUEST:

Establish an All-Way Stop Control

PROBLEM AS STATED BY REQUESTER:

The Lake San Marcos Community Association (LSMCA) has represented the 4500 citizens of this community for several decades. We stand now, with assurances of complete support of the entire community, as the singular voice of the community in this matter.

For the past several years, the Lake San Marcos neighborhood has seen an ever-increasing traffic problem manifest on our streets. In a recent survey, conducted by LSMCA, the Lake residents resoundly identified *Increasing Traffic and Traffic Safety* as the single most perplexing issue faced by the community.

In August 2000, the LSMCA chartered a committee of concerned residents to research, evaluate and propose remedies for this problem. The committee worked extensively with members of the San Diego county offices of the Sheriff, Public Works, Traffic Calming, as well as the California Highway Patrol and the City of San Marcos. In December 2000, the committee forwarded to the LSMCA the enclosed plan for "Lake San Marcos Traffic Remediation". Central to this plan is the traffic counting activity by the committee, conducted on October 23, 2000 under the auspices of the County, which revealed significant traffic overload on certain Lake San Marcos street and identified the predominant cause of this traffic overload.

Due to the proximity of the intersection of Rancho Santa Fe Road and San Marcos Boulevard, certain Lake San Marcos streets are being used as a "cut through" alternative to the enormous commuter traffic that has built up on the arterial streets of the North County. The principle route through the Lake, utilizing Lake San Marcos Blvd., San Marino Dr. and San Pablo Dr. to access Discovery Street in the City of San Marcos, has caused a 500% traffic overload condition on San Pablo Dr.

PROBLEM AS STATED BY REQUESTER (cont.)

It should be noted that this section of the Lake residential area is a county road, has no sidewalks, is an authorized golf cart route and is routinely used by our elderly and partially infirmed citizens, both walking and in mechanized wheel chairs. Traffic in this section, which was designed for a nominal daily load of 1000 vehicles, has be registered with nearly 6000 average daily trips at an average of 10 MPH above the posted speed limit.

The citizens of Lake San Marcos simply cannot and will not tolerate continuation of this condition. There has been a recent in crease in accidents and there <u>will</u> be a future fatality at some point in the near future, unless something is done very <u>quickly!</u>

The solutions proposed by the Plan requiring TAC action include:

 Additional stop signs. Proposed location is Lake San Marcos Drive and San Marino Drive.

DATA:

Existing Traffic Devices

Lake San Marcos Drive is a striped four-lane roadway 80 feet in width that "Tees" into San Marino Drive from the north. There is a planted center median separating both directions of traffic. It is stop controlled with limit lines and STOP pavement legends in place for both southbound travel lanes. There is also a Stop Ahead sign and pavement legends in place for southbound motorists. The road is posted 25 MPH.

San Marino Drive is a striped two-lane residential-in-nature roadway 40 feet in width. The west leg of San Marino Drive is posted 25 MPH; the east leg is unposted.

Average Daily Traffic Volumes	<u>2/01</u>		
San Marino Drive: W/o Lake San Marcos Drive E/o Lake San Marcos Drive	1640 EB 2520 WB		
Lake San Marcos Drive: N/o San Marino Drive	2990 SB		

Collision Data

There has been one reported injury collision at this intersection in the last three years (12-31-97 to 12-31-00). It involved a southbound bicyclist who failed to stop at the stop sign and violated the right-of-way of an eastbound motorist.

Recommendation

The Committee recommends the issue of establishing an all way stop control at the intersection of Lake San Marcos Drive and San Marino Drive be continued until the question of installing a time-actuated gate across another road within the Lake San Marcos community to discourage commuter traffic is resolved.

Discussion

The requester, who was in attendance, stated one of the primary reasons for requesting an all-way stop control be established at this location was to discourage commuter traffic from using local roads within the Lake San Marcos community as a short-cut. Although the suggested statewide guidelines used to evaluate the need for an all-way stop control were very close to being met, the Committee expressed concern such an installation might not accomplish the requester's desired goal. Rather, an all-way stop control might actually encourage commuter traffic to use Lake San Marcos Drive since it would be easier to enter San Marino Drive if it were stopped.

The Committee agreed commuter traffic should be discouraged from using local streets within the Lake San Marcos community as a short-cut. However, the Committee did not believe the establishment of all-way stop controls at various locations, as suggested by the requester, was an effective method of addressing this issue.

During the discussion of this issue, the requester stated the homeowner's association was currently exploring with the Department of Public Works the possibility of installing a time-actuated gate across a road within the Lake San Marcos community to discourage commuter traffic. It was the Committee's belief this alternative, if implemented, would be a more effective method of accomplishing the homeowner Association's desired goal. Therefore, the Committee recommends the issue of establishing an all-way stop control at the intersection of Lake San Marcos Drive and San Marino Drive be continued until a decision is made on the installation of a time-actuated gate.

Necessary Board Action

File this report.

APPENDIX H

> Response to County Comments



MEMORANDUM

DATE:

July 21, 2005

TO:

Troy Burns, Lundstrom + Associates

FROM:

Jessica Bavos

D&A Ref. No: 040912

RE:

Lago De San Marcos (TM 5388) – Responses to the County of San Diego's June 16,

2005 Comment Letter.

Darnell & Associates, Inc. (D&A) has reviewed the County of San Diego's June 16, 2005 comment letter on our traffic impact analysis for the proposed Lago De San Marcos (TM 5388). The following summarizes our responses to each of the County's comments. These responses have been incorporated into our latest version of the traffic impact analysis.

COUNTY OF SAN DIEGO COMMENTS DATED JUNE 16, 2005

Traffic

- > In comments made regarding the TIF program it should be noted that the County said the fee was \$6,383 per dwelling unit, this is the fee for single family units. This is incorrect since the project is a 40 multi-family condominium unit, therefore the fee is actually \$4,255 per unit.
- In the TIF language provided by the County, when talking about the project's ADT the language said the proposed project generated 320 ADT that assumes 8 trips/dwelling units, when D&A has assumed 6 trips/dwelling units to yield a project generation of 240 ADT.
- Comment 1: Per the County Standards the proposed project will have cumulative traffic impacts to Rancho Santa Fe Road and San Marcos Boulevard that are located within the City of San Marcos. County guidelines should be utilized for assessing impacts in the City of San Marcos as well as the County.
- Response 1: The project correctly identifies cumulative impacts within the City of San Marcos. The applicant has agreed to pay the TIF for the traffic traveling on the County roadways that are a cumulative impact.

040912-Responses to 07-21-05 County Comments-memo/07-05

Page 1 of 2

Comment 2: If the County Transportation Impact Fee (TIF) program is not utilized, the 18% of trips assigned to Rancho Santa Fe Road must be tracked further down to identify trips on County roads.

Response 2: The TIF language was added to the text in the Mitigation Section of the report.

Comment 3: On page 33, the developer proposes to modify the median on Lake San Marcos Drive to provide an eastbound and westbound left turn lane. The consultant / applicant should provide a proposed striping plan for the median modification to the Department of Public Works Traffic Engineering Section for review and comment.

Response 3: Figure 13 was added to the report to show the modified median design.

MEMORANDUM

DATE:

January 26, 2006

TO:

Troy Burns, Lundstrom + Associates

FROM:

Vicki S. Haskell, P.E.

25 H

D&A Ref. No: 040912

RE:

Lago De San Marcos (TM 5388) - Responses to the County of San Diego's November

10, 2005 Comment Letter

Darnell & Associates, Inc. (D&A) has reviewed the County of San Diego's November 10, 2005 comment letter on our August 16, 2005 traffic study for Lago De San Marcos (TM 5388). The following summarizes our responses to each of the County's comments.

The revised Traffic Study has adequately addressed our section's previous comments Comment 1:

dated May 17, 2005.

Response 1: So Noted.

Comment 2: The Traffic Study (Pg. 34) has recommended that the project contribute to the County's

TIF program in order to mitigate the project's cumulative impact.

Response 2: This recommendation is still made in our January 26, 2006 traffic study.

Comment 3: A full-size copy of Figure 13, proposed median modification at the Lake San Marcos

Drive/La Tierra Drive intersection (Pg. 33) should be submitted and reviewed by DPW's

Traffic Section.

Response 3: A full size copy of Figure 13 - Proposed Median Modification at the Lake San Marcos

Drive/La Tierra Drive intersection will be submitted to the County for DPW's review.

TRANSPORTATION PLANNING & TRAFFIC ENGINEERING

MEMORANDUM

DATE:

December 7, 2006

TO:

Troy Burns, Lundstrom + Associates

FROM:

Jessica Bavos 🤇

D&A Ref. No: 040912

RE:

Lago De San Marcos (TM 5388) - Responses to the County of San Diego's May 16,

2006 Comment Letter

Darnell & Associates, Inc. (D&A) has reviewed the County of San Diego's May 16, 2006 comment letter on our January 26, 2006 traffic study for Lago De San Marcos (TM 5388). The following summarizes our responses to each of the County's comments.

- The project applicant/engineer should provide an analysis for traffic volumes that would Comment 1: use the proposed left turn pocket for westbound traffic along San Marcos Drive. The length of the turn pocket needs to be adequate for deceleration and potential queuing.
- The traffic study has been revised to expand the discussion on the volume of traffic Response 1: expected to utilize the westbound left turn lane at Lake San Marcos Drive and La Tierra Drive. The proposed 80-foot turn lane will adequately accommodate the projected demand. (See page 33 of our revised report.)
- Operationally, it may be preferable to allow right turns out of Driveway "B" so that the Comment 2: driveway can be a standard driveway, and motorists desiring to continue east on Lake San Marcos Drive beyond La Tierra Drive can exit that driveway. The project applicant/engineer should consider a median opening posted for no U-turns for eastbound traffic, or a left turn pocket for eastbound traffic would be installed in order to better accommodate the right turns out of Driveway "B".
- Driveway "B" has been closed see Figure 2 (Page 4) for new Site Plan, thus this Response 2: comment is no longer applicable.
- The project engineer should state why prohibiting right turns out of Driveway "B" is Comment 3: recommended.
- Refer to Response 2. Response 3:
- If the project proposes to prohibit exit from Driveway "B", the project engineer should Comment 4: identify what measures will be implemented to prevent motorists from making right turns out of Driveway "B".
- Refer to Response 2. Response 4:

040912-Responsed to County 12-04-06Comments-memo.doc/12-06

Page 1 of 2

- Comment 5: The design of the driveway should provide sufficient room to allow motorists to turn around once they realize that they can not exit from Driveway "B".
- Response 5: Refer to Response 2.
- Comment 6: The Traffic Study should verify that the 80-foot westbound left turn pocket length (Fig.13) at the Lake San Marcos Drive/La Tierra Drive/Driveway "D" intersection will be sufficient to accommodate the projected vehicle queues.
- Response 6: There are 2 peak hour trips expected to use the westbound left turn pocket at the Lake San Marcos Drive/La Tierra Drive/Driveway "D" intersection. The average vehicle requires 25 feet of storage thus the queue at the westbound left turn lane is not expected to exceed 50 feet (i.e. 2 vehicles X 25 feet/vehicle = 50 feet). Therefore, the 80 foot turn pocket will be sufficient to accommodate the project vehicle queues.
- Comment 7: Figure 13 was reviewed by the Department of Public Works for concept only. A signing and striping plan will need to be provided once project conditions have been approved. The project applicant/engineer should continue to coordinate with DPW staff in order to finalize the project's conditions of approval and improvement plans. If addressing the above questions/comments results in another change to the project's proposed access plan, the Traffic Study will need to be revised.
- Response 7: So Noted.